LIBRARY
BUREAU OF CHEMISTRY
RECEIVED
★ JUL 21 1922 ★
DEPARTMENT OF AGRICULTURE

MEMBER OF THE A. B. C.

FIFTY-FIRST YEAR

PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY

ESTABLISHED IN 1872

Vol. LXXV. No. 3 NEW YORK AND CHICAGO, JULY 20, 1922 { Per Annum, $4.00 / Single Copy, 10 Cents

LIBRARY RECEIVED JUL 21 1922 U.S. Department of Agriculture

SCANDINAVIAN-AMERICAN TRADING COMPANY
50 EAST 42 ST., NEW YORK CITY

No matter what you expect from the pulp you buy—we have something that will fill the bill,—and *at the right price.*

WOOD PULP

PAGE 19!

TRAIN SMITH COMPANY
Paper Mill Supplies
10 Milk St. (Old South Bldg.), Boston, Mass.
Packing House: Chelsea, Mass. Branches: London-Liverpool

PARSONS TRADING COMPANY
Paper Exporters
17 Battery Place New York
London Stockholm Bombay Shanghai Wellington
Havana Buenos Aires Mexico Rio de Janeiro Naples
Parsons Trading Company (Australia), Limited
Sydney Melbourne

ATTERBURY BROS.
(INCORPORATED)
WOOD PULP, RAGS AND PAPER STOCK, FRENCH CASEINE
145 NASSAU STREET (POTTER BLDG) NEW YORK

CABLE ADDRESS REGHAMMOND NEW YORK TELEPHONE VANDERBILT 4568-9
R. F. HAMMOND
342 MADISON AVENUE NEW YORK
WOOD PULP PAPER

PULP STONES
INTERNATIONAL PULP-STONE CO.
ELYRIA, OHIO

PRICE & PIERCE., Ltd
17 East 42d Street, New York
Sole Selling Agents for Bathurst Company Ltd. BATHURST, N. B.
Kraft Pulp and Easy Bleaching Sulphite

Diamond-F
PROTECTIVE PAPERS
Glassine Parchmoid
Vegetable Parchment Greaseproof
Diamond Fibre Receptacles of all kinds
Diamond State Fibre Company
Dept. 27
BRIDGEPORT, PENNSYLVANIA (near Philadelphia)

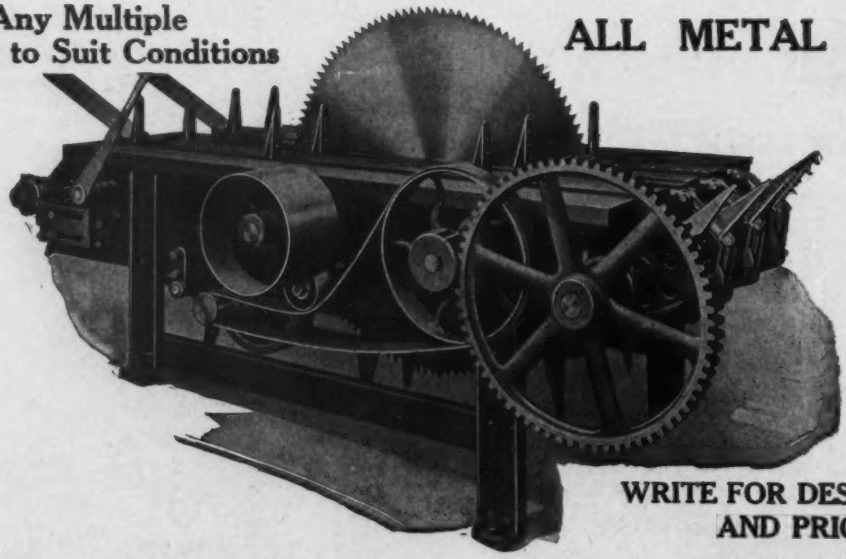
INTERNATIONAL PULP CO.
NEW YORK CITY
ASBESTINE PULP + **FILLER**
90% Retention
REG. U. S. PATENT OFFICE

XUM

PULP AND PAPER
OF
EVERY DESCRIPTION
HUDSON TRADING COMPANY
300 Madison Avenue
NEW YORK
ESTABLISHED 1884
CABLE ADDRESS: "HUDTRACO," NEW YORK

DANA T. McIVER
High Grade Printing Paper
116 So. Michigan Avenue
CHICAGO
BOOK AND COATED PAPER
Car Lot and Tonnage Contracts

FITCHBURG DUCK MILLS
ESTABLISHED
1844.
FITCHBURG, MASS.
MANUFACTURERS OF
Standard and Multiple
DRYER FELTS
English Weave in Two, Three, Four, Five and Six Ply
60 Inches to 176 Inches in Width
Fine Faced Felts for Fine Papers
Absolutely No Felt Marks in Paper
TRIUNE Three Ply Felts for Coarse Papers

SINGLE SAW SLASHER
Built in Any Multiple
Required to Suit Conditions
ALL METAL FRAME

WRITE FOR DESCRIPTION
AND PRICES
WATERVILLE IRON WORKS
Waterville, Maine

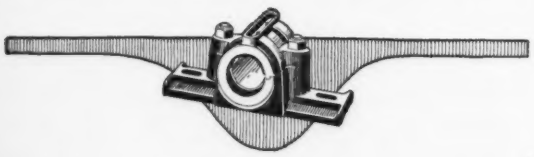
TRANSMISSION MACHINERY

THE Caldwell line is complete. Bearings—heavy, properly designed, and well finished. Pulleys of ample weight and accurately turned. The entire line has achieved outstanding recognition under hard service.

Let us figure on your requirements.

H. W. CALDWELL & SON CO.
LINK-BELT COMPANY, OWNER
Dallas, Texas, 709 Main Street—Chicago, 17th Street and Western Ave.—New York, Woolworth Bldg.

CALDWELL



3

Stickle Compound Condensing System and Automatic Steam Control for Paper Machines

The folder we sent out to the mills "HOW TO DRY PAPER" showing our automatic steam control and our compound condensing system for draining the dryers and heating the air with the discharge from the dryers to condition the machine room, should interest you. In many mills we can guarantee a saving of 20% in steam consumed in drying the paper and conditioning the air for the machine room.

OPEN COIL HEATER & PURIFIER CO.
INDIANAPOLIS, IND.
BOSTON PHILADELPHIA

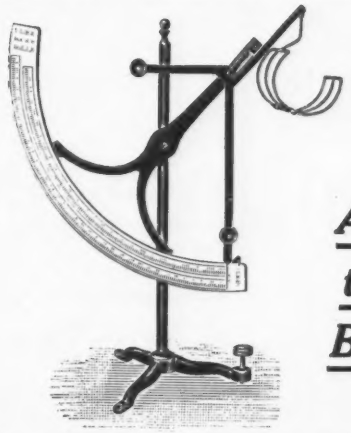
ALVAH MILLER, Pres. TOM T. WALLER, Vice-Pres.
NATH'L L. MILLER, Secy-Treas.

Craig-Becker Company
INC.

Domestic and Foreign Ground Wood and Sulphite

52 VANDERBILT AVE.
NEW YORK CITY

SCHOPPER
STANDARD PAPER TESTERS



Are the Best

Full Sheet Paper Scale

Standard Scale for telling actual weight per ream of 480 and 500 sheets in the size of the sheet that is weighed. Graduated ½ to 125 lbs. Brass weight comes with the Scale to double its capacity.

FOREIGN PAPER MILLS, Inc.
U. S. A. *Sole Agents* CANADA
72 Duane Street New York, N. Y.

XUM

ESTABLISHED 1882 INCORPORATED 1921

IMPORT EXPORT
RAGS NEW CUTTINGS
JUTE STOCK
ROPE

KATZENSTEIN & KEENE
(INCORPORATED)
63 PARK ROW, NEW YORK

J. ANDERSEN & CO.
21 EAST 40th STREET, NEW YORK CITY

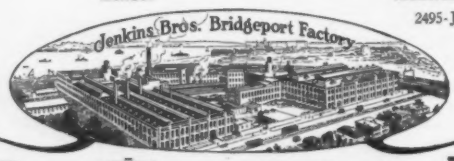
Importers of Chemical Pulps
BLEACHED and
UNBLEACHED
Agents for Kellner Partington Paper Pulp Co., Ltd.
Sarpsborg Norway; Forshaga, and Edsvalla, Sweden.

TRADE JENKINS MARK Jenkins Bros.

A valve with the Jenkins Diamond and Signature
—*what it means:*

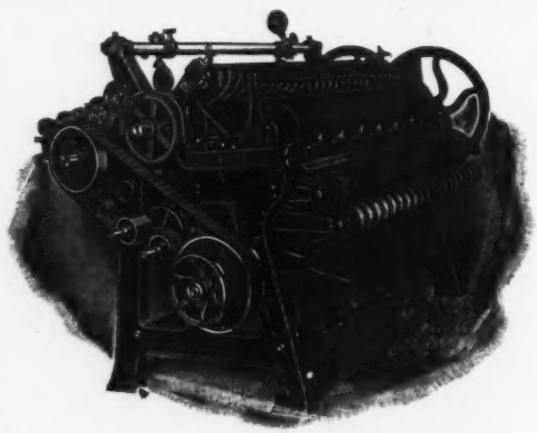
First—that it is a genuine Jenkins Valve made by Jenkins Bros., and not an imitation.
Second—that it is heavier and stronger, and will in every respect meet every service requirement.
Third—that it is a product of an organization which has been making valves for over 57 years.
Jenkins Valves for all requirements.
Supply houses everywhere.

JENKINS BROS.
New York Boston Philadelphia Chicago
London Montreal
2495-J



Jenkins Valves
SINCE 1864

Paper Cutters
Single, Duplex and Diagonal



Cutter Knives Patent Top Slitters

HAMBLET MACHINE CO.
Lawrence, Mass.

WE ARE SAFE IN OUR PROPOSITION
YOU'LL MAKE NO MISTAKE IN ACCEPTING IT

PICKLES DRYING REGULATOR

will do everything we claim for it and more. The test costs you nothing until you are satisfied. Many mills tried one and now have every machine equipped. Write for list of users and other information.

W. F. PICKLES, Buckland, Conn.

Boxboard Paper Board Specialties

Have you ever considered the advantages of doing business with the organization which guarantees the most satisfactory service, prices and deliveries?

It's worth your while to investigate what we can do for you.

The C. L. La Boiteaux Co.

Cincinnati Cleveland Chicago New York

NORWOOD FILTERS

Especially designed to meet all Paper Mill needs

NORWOOD ENGINEERING CO.

Florence, Mass., U. S. A.

BLEACHED
Sulphite Fibre

THE extent of our production *(daily capacity of 600 air-dry tons)* insures uniform quality, prompt shipments and market prices

BROWN COMPANY
founded 1852
PORTLAND MAINE
Mills at Berlin, New Hampshire

NEW YORK CITY
Woolworth Bldg.

CHICAGO
110 So. Dearborn St.

The
St. Regis Paper Company
and the
Hanna Paper Corporation

Daily Capacity, 425 Tons

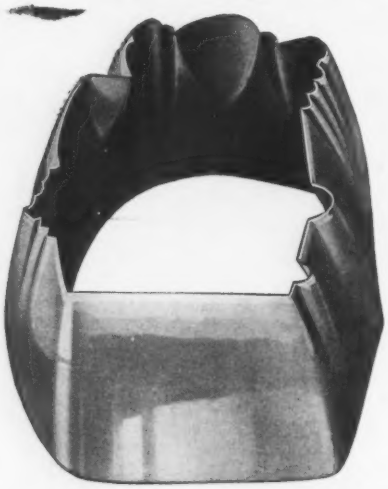
Newsprint
Catalog
Butchers' Manila
Packers' Oiled Manila
Jute Container Board
Ground Wood and Unbleached Sulphite

Manufacturers of
TARZAN Fibre Shipping Cases

General Sales Offices:
30 East 42nd St. New York

XUM

Cutting Dies
of superior quality

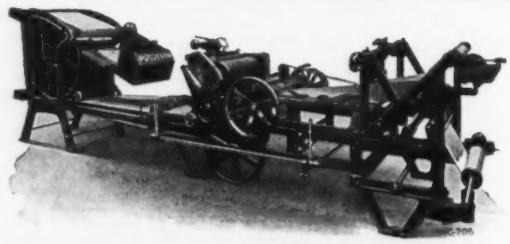


NO matter how intricate or involved the design is, we'll make it and make it right. Every die of carefully selected steel, guaranteed flawless and warranted to give long, satisfactory service. The more difficult your die-cutting problems the more we'll enjoy helping you solve them. Send us a rough sketch or description of what you want and we'll tell you if it is practically possible to produce it.

Circular, oval and elliptical dies in all sizes. Envelope dies for both regular and open-end shapes. Dies for labels and cut-outs of every conceivable kind. Glove dies, shoe dies, cloth-cutting dies—we make them all. Write for descriptive booklet, illustrating 50 different dies, many of which are very intricate, showing what seemingly impossible designs we are able to make.

The INDEPENDENT DIE CO., *Inc.*
2641 LaSalle Street
ST. LOUIS, MO.

POTDEVIN
PAPER BAG



ENVELOPE—PAPER WAXING
MACHINERY

POTDEVIN MACHINE CO.
1223 38th Street Brooklyn, N. Y.

Felts
Made to Suit Your Individual Needs

Quality Paper
Quantity Production
is another way of saying
APPLETON
Felts and Jackets
Appleton Woolen Mills
Appleton, Wis.

COLLINS MANUFACTURING COMPANY

SAMUEL R. WHITING, Pres. and Treas.

Manufacturers of

LOFT DRIED PAPERS
LEDGERS
BONDS
WRITING PAPERS

Mill: North Wilbraham, Mass.
Main Office:
208 Race Street
Holyoke, Mass.

TEXAS GULF SULPHUR

99½ Per Cent. Pure.

Produced from one of the largest known deposits in the world.

Texas Gulf Sulphur Company
General Offices
41 East 42nd Street, New York, N. Y.

Sulphur Deposit and Plant, Matagorda County, Texas

A Third of a Century

of practical experience in the manufacture of Recording Instruments for every paper and pulp mill purpose has placed Bristol's products to the fore.

Dependability is the keynote which has gained the confidence of a world-wide list of users of this—the most extensive line of recording instruments in the world.

A little over thirty years ago, the only recording instrument was the pressure gauge. With the phenomenal advance in paper and pulp manufacture has come an increasing demand for more accurate recording instruments. The leading pulp and paper mills have found that by the application of recording instruments to their various manufacturing processes, they have been able to obtain a better and more uniform product. As a consequence, plant efficiency has been vastly improved.

TRADE MARK
BRISTOL'S
REG. U.S. PAT. OFFICE

Recording Instruments

have amply fulfilled their purpose in the paper and pulp mill. They furnish the operator of any process with an accurate guide as to at just what rate and to what extent the process is taking place. They equip him with a filable record of the varying conditions which enter into the process. They are a check in the hands of the superintendent. With this knowledge he can see to it that the best operating conditions are maintained.

We could go on indefinitely describing the many uses to which Bristol Recording Instruments can be put in the paper and pulp mill, did space permit. Our complete line of Recording Instruments of primary interest to paper and pulp mills is adequately described in Bulletin BE-303. May we send it to you?

"With Bristol Instruments You KNOW."

THE BRISTOL COMPANY
Waterbury, Conn., U. S. A.
Branch Offices
Boston New York Philadelphia Pittsburgh Detroit Chicago St. Louis San Francisco

2

Let Them Drink to your business health in cups you sell

each drink a cup—each cup a sale for you and at lowest cost of any cup on the market.

At such prices SALES RESISTANCE IS NEGLIGIBLE and our direct advertising assistance in your city will get immediate results as it is now doing in many cities.

Burt's Paper Drinking Cups are made of fine white paper, without wax to make drinks taste, and are reinforced so holders are not necessary. They are kept under glass and cannot be wasted or soiled before use.

Cups retail at one fourth cent—dispensers at five dollars.

F. N. Burt Company, Ltd.
Paper Cup Division
Buffalo, N. Y.

How Much Industrial Waste Does Your Plant Commit Daily?

Belt Conveyer Handling Coal

Jeffrey Flat and Round Link Chain Conveyer handling cooked straw over beaters in paper and board mill.

ARE you employing modern methods that will bring your works to a high state of efficiency and your operating costs down to rock bottom—or, are you using obsolete expensive and wasteful methods?

Jeffrey Labor-Aiding equipment has eliminated industrial waste in many of the leading pulp and paper mills, through the rapid and efficient handling of Logs, Pulpwood, Pulp Laps, Straw, Bark, Bales, Coal and Ashes and other materials.

A complete line of conveying and Elevating Machinery; Chains; Sprockets; Portable Loaders and Conveyers; Pulpwood Stackers; Crushers; Pulverizers; Shredders; Coal and Ashes Handling Equipments; Electric Industrial Locomotives, etc.

Let Jeffrey Expert Engineers help you to plan the "right equipment."

THE JEFFREY MFG. CO., 931 North Fourth St. Columbus, Ohio

JEFFREY
MATERIAL HANDLING MACHINERY

FLY BARS

Bed Plates Jordan Fillings

KNIVES

Uniformly High Grade
Quality and Finish

Order BOLTON QUALITY next time

JOHN W. BOLTON & SONS, Inc.
LAWRENCE, MASS.

2

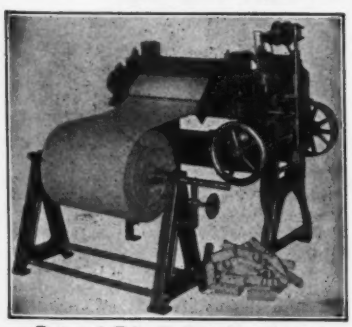
PERFORATED METAL SCREENS
IN STEEL AND ALLOYED METALS
For Pulp and Paper Mills

Elevator Buckets, Conveyor Flights and Troughs, General Sheet and Light Structural Work

Light and Heavy Steel Plate Construction

HENDRICK MANUFACTURING CO.
75 Dundaff Street, Carbondale, Pa.
New York Office, 30 Church St.
Pittsburgh Office, 544 Union Arcade Building

Dietz Toilet Paper Machinery
AND LATEST IMPROVED PATENTED
Automatic Tube Machines
For Making Tubes for Toilet Paper Rolls, Paper Towel Rolls



Patented Feb. 22, 1916, May 18, 1920.

Capable of producing 3,600
Toilet Tubes
per hour direct from roll.

Towel Tubes
are made at rate of 1,800 per hour. Substantially built and fully guaranteed.

Toilet Paper Machines for making Toilet Rolls with or without perforations and machines for making Sanitary Crêpe Paper Towels, Punch Presses for Sheet Toilet Paper, Drop Roll Slitters, Slitting and Rewinding Machines, Side and Center Seam Merchandise Envelope Machines, Photo Mount Beveling Machines, Candy Bag Machines, Punch Presses for Playing Cards, Rotary Card Cutting and Collating Machines, Etc.

DIETZ MACHINE WORKS
126-128 Fountain Street PHILADELPHIA, PA.
Corner Waterloo St., Below Diamond St., Bet. Front and 2d Sts.

Clay
300 Tons daily

Some portion of our clay production is ***pulverized.*** That part of it which is ***pulverized*** is, as far as we know, the only ***pulverized clay*** which is washed and refined before being pulverized.

This insures greater freedom from impurities and an exceedingly uniform product.

Prices on M-E pulverized clay may surprise you even considering this additional treatment.

Let us submit samples and quote you

AMERICAN MADE FOR AMERICAN TRADE

THE MINER EDGAR CO.

110 William Street
New York

CONVEYING AND POWER TRANSMITTING MACHINERY

For handling the raw materials and finished products inside or outside the plant

Quality Pays

Frequent shutdowns and waiting for repairs dissipate your profits.

Weller Made Machinery proves its merit because quality is built into it.

LET US KNOW

The kind of equipment you are interested in. Catalogues will be sent.

WE DESIGN AND MAKE
BELT CONVEYORS
CHIP CONVEYORS
COAL CONVEYORS
PULP CONVEYORS
STRAW CONVEYORS
BUCKET ELEVATORS
HEAVY STEEL CHAIN
COMBINATION CHAIN
SPROCKETS
SCREENS
FRICTION CLUTCHES
HEAVY BEARINGS
ROPE DRIVES
PULLEYS
GEARS
COAL HANDLING EQUIPMENT, ETC.

Get Our Prices Before Placing Your Order.

WELLER MFG. COMPANY

Main Office and Works: 1820-1856 N. Kostner Ave. CHICAGO, ILL.

Sales Offices

New York Boston Baltimore Pittsburgh Cleveland Detroit Salt Lake City San Francisco

ROGERS WET MACHINE

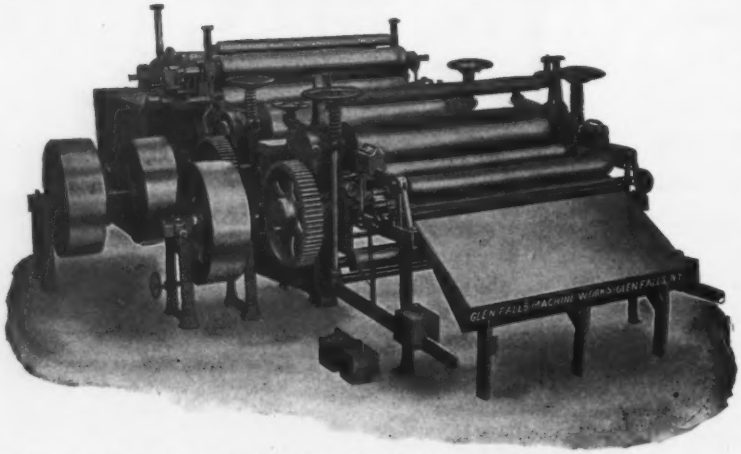


Illustration Shows Rogers Double Press Wet Machine

FOR CHEMICAL PULP—including Sulphite, Sulphate, Soda, also Cotton and Waste Paper fiber.

TYPES—Single and Double Press 72" wide.

CAPACITY—either type 25-30 tons air dry stock per 24 hours.

SHEETS produced by the Double Press Machine uniformly 48% dry. By the Single Press Machine uniformly 40% dry. There is no fold to contain excessive moisture. Sheets are handy size, 33"x36", and are folded once into most convenient bundles for storage, for the beater or for shipping. By this great capacity, high dry test, small amount of floor space per ton pulp produced, exceedingly low cost for labor and maintenance, users are assured that the machine will completely pay for itself within one year, and are promised a handsome return on their investment.

WORKMANSHIP AND MATERIAL GUARANTEED

GLENS FALLS MACHINE WORKS Glens Falls, N. Y.

Try Our Split Cams for Your Flat Screens

NAPKINS

Flat or Folded

Each possesses true napkin quality. Neither carry lint to adhere to clothes or person of user. Fort Howard Folded Napkins have a uniformity of fold and trim that eliminates the waste ofttimes met with in a napkin that must be hand folded.

Fort Howard Paper Co.
Green Bay, Wis.

SAVE POWER
by Installing

PERKINS FANS

Efficient, Economical Ventilation

The end-thrust ball-bearing collars on all Perkins Ventilating Fans reduce loss of power through end-thrust friction to a minimum.

Adjustable and reversible blades —variable capacity—removable babbitt bushings—positive lubrication — all-steel construction.

For full information about our Fans, Calender Rolls, Rag Cutters, the Mullen Paper Tester and the new Perkins Tensile Tester, write Dept. P7.

B. F. Perkins & Son, Inc., Holyoke, Mass.

Wood Plugs

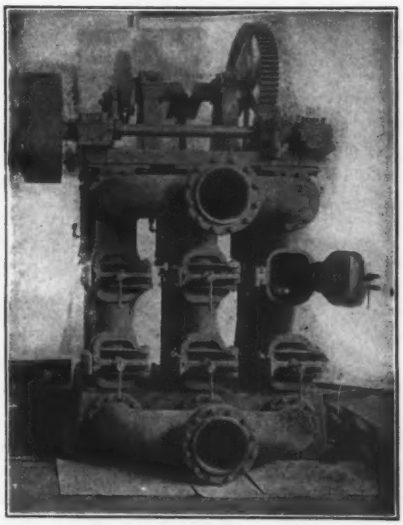
For paper rolls, made to pattern under shop names in four sizes as follows: CARD, 3"; MANILLA, 2¼"; NEWS, 2½"; DRUG, 2⅛"; 1¾" in length, having 1" hole, and tumble polished when shipped. You should if possible, adjust your needs to these stock sizes, with prospect of prompt shipping in carlots or less, thereby avoiding serious delays in waiting for something special. Samples cheerfully furnished.

O. L. BARTLETT
MOUND CITY, ILL. Eastern Office: 855 West End Ave., New York, N.Y.

The Black-Clawson Co.

Hamilton, Ohio

Builders of All Types of Paper Making Machines and Machinery



for PAPER and PULP MILLS

Successful machines in operation are proof our work is built right.

XUM

HANS LAGERLOEF, Pres. and Treas.
ORVAR HYLIN, Vice-President
MAURICE LONDON, Secretary

Telephones
Murray Hill { 4246 4247

TRADE MARK

Lagerloef Trading Company, Inc.

52 VANDERBILT AVENUE, NEW YORK, N. Y.

WOOD PULP

Sole Agents in U. S. A., Canada, Mexico and Cuba for

FINNISH CELLULOSE ASSOCIATION, HELSINGFORS, FINLAND
AND
FINNISH WOOD PULP UNION, HELSINGFORS, FINLAND

Starch

Paper manufacturers generally recognize the value of starch in the manufacture and coating of paper.

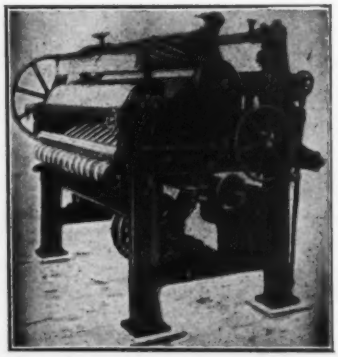
To obtain definite results in any desired direction in the preparation of paper, not merely a difference of grade, but a difference of kind or variety of starch is required.

Our carefully controlled and thoroughly standardized processes enable us to produce exactly the various starches which the paper industry has found economical and efficient.

Corn Products Refining Company
17 Battery Place New York

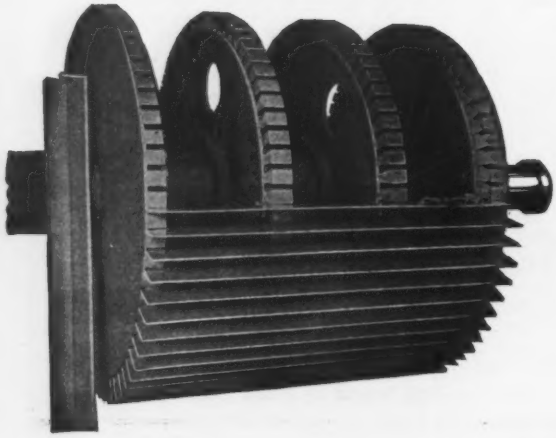
THE CLARK-AIKEN CO.

Successors to
H. C. Clark & Son Machine Co.
PAPER MILL MACHINERY
LEE, MASS.



Revolving Paper Cutters—Rag Cutters—Cylinder Paper Machines—Washing and Beating Engines—Chilled Iron and Paper Calenders—Fan and Stuff Pumps—Engine Roll Bars and Bed Plates—
Cylinder Molds—Marshall Drives—Slitters and Rewinders—Reels—Dryers with Improved Packing Boxes—Wet Machines—Gun Metal and Rubber Rolls—Rolls Reground.

Starch



Dilts Machine Works, Inc.

Fulton, N. Y., U. S. A.

Manufacturers of

BEATING and WASHING ENGINES
FLY BARS—BED PLATES—
MACHINE KNIVES

Our new KEYED TYPE BANDLESS ROLL is the final result of Many Years of Experience.

May we not tell you about its many advantages?

We offer a full line of

COLORS

and furnish precise directions on application for

Beater Dyeing, Staining and Coating

Half a century's experience enables us to furnish goods answering requirements and to give reliable service

THE HELLER & MERZ CO.

BOSTON CHICAGO NEW YORK PHILADELPHIA SPRINGFIELD, MASS.

Announcing The IMPROVED KENWOOD TAN JACKET

KENWOOD WOOL PRODUCTS

Three years' experiments resulting in new methods of construction, which required especially designed machinery, some of it necessarily built in the Kenwood plant, have developed this jacket.

The result is greater strength; a smoother, softer, more resilient surface; a jacket that will shrink back more tightly and hug the roll more firmly; that is not likely to creep or lump; a jacket that permits change of deckle out or in; that removes more water.

The perfection of the Kenwood Tan Jacket and the improvements in operation resulting from its use make unnecessary the installation of SUCTION COUCH ROLLS.

Kenwood Tan Jackets being woven in layers or strata may be worn away to the last layer without endangering wires.

Particulars on request.

F. C. HUYCK & SONS Kenwood Mills, Albany, N. Y.

Also made at Kenwood Mills, Ltd., Arnprior, Ontario, Canada

XUM

B.D.

"GOAT BRAND"

STRONG SULPHITES
AND
KRAFT PULP

PRODUCED BY

BERGVIK & ALA NYA A-B
SÖDERHAMN, SWEDEN

We can fill orders for immediate shipment from dock or contracts over the balance of the year

SOLE SELLING AGENTS

BULKLEY DUNTON & COMPANY
75-77 DUANE STREET. NEW YORK

MEMBER OF THE A. B. C.

PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY

FIFTY-FIRST YEAR

PUBLISHED EVERY THURSDAY BY THE

LOCKWOOD TRADE JOURNAL COMPANY, INC.

LESLIE R. PALMER, President — J. W. VAN GORDON, Vice-President

Telephone { 2380 / 2381 / 2382 } Vanderbilt — *10 EAST 39TH ST., N. Y., U. S. A.* — Cable Address Catchow, New York

Western Publication Office—431 S. Dearborn Street, Chicago
New England Office—Room 46, 127 Federal Street, Boston
Washington Office—L. M. Lamm, 63 Home Life Bldg.
Western New England News Office—Michael Connor, Holyoke
London Office—Stonhill & Gillis, 58 Shoe Lane

THE PAPER TRADE JOURNAL is the pioneer publication in its field, and has for many years been the recognized Organ of the Paper and Pulp Industry. Its circulation is greater than the combined circulation of all other publications in the field. Entered at New York Post Office as second-class mail matter.

Terms of Subscription

UNITED STATES AND MEXICO.....Per year, $4; 6 months, $2; 3 months, $1
CANADA AND FOREIGN COUNTRIES IN POSTAL UNION.....Per year, $6
SINGLE COPIES .....10 cents

Other Publications of Lockwood Trade Journal Company, Inc.

AMERICAN STATIONER AND OFFICE OUTFITTER (Weekly).....Per year, $3
LOCKWOOD'S DIRECTORY OF THE PAPER STATIONERY AND ALLIED TRADES (Annual) .....Per copy, $7

Vol. LXXV. No. 3 — NEW YORK AND CHICAGO — Thursday, July 20, 1922

Table of Contents

News of the Trade:

	PAGE
Recommendations for Paper Standardization	16
Eddy Paper Co. Refinancing Proposed in New Plan	17
J. H. O'Connell Goes With Diana Paper Co.	17
Production of Wood Pulp During Month of May	18
Holyoke Not Affected by Coal Shortage	20
Carew Mfg. Co. to Build Filter House	20
E. N. White to Be Candidate for Mayor	20
Col. Franklin Speaks on Science of Color	20
To Reopen Riverside Mill	20
Chicago Salesmen Plan October Meeting	20
Philadelphia Trade Shows New Improvements	22
Possibilities of Higher Prices	22
Philadelphia Mfg. Co. Goes on Full Time	22
Philadelphia Trade Meetings	22
Standard Paper Mfg. Co. Improvements	24
News of the Boston Trade	24
Straw Cellulose Products Co. Formed	24
Paper Outlook in Toronto Growing More Satisfactory	26
Appleford Co., Ltd., Formed	26
Trade Mark Department	28
Rudd Paper Box Co. Outing	28
Consider Maguey Pulp in Paper Making	28
Automatic Load Regulators for Grinders	28
New York Salesmen Hold Summer Outing at Malba	30
New Mileage Bill Will Effect Big Saving	32
$1,000,000 Groundwood Fire at Port Alfred	32
New York Trade Jottings	34
Demand Increases in Wisconsin	34
Why the Refractory Is a Factor in Furnace Life	36
Bert Forsyth Goes Into Business in Chicago	38
Ground Pulp More Active	38
Big Virgin Forests of Sitka Spruce	40
To File Claims for Water Damage in Wisconsin	40
Acting Chief of the Paper Division	40
British South Africa Imports Less Paper	40
The Early Manufacture of Sulphite Pulp	43
Secretary Beck Replies to Mr. McBain	43
Employment Service of the Engineering Societies	43
Paper Demand in Chicago Is Constantly Expanding	58
Gardner & Harvey Co. to Use K-B Process	58
Imports and Exports of Paper and Paper Stock	60
Bid and Award for Government Paper	64

Editorial:

Foreign Paper Trade	42
A Time for Caution	42

Technical Section:

Paper Testing Methods	45
The Bursting Strength of Paper	49
Current Paper Trade Literature	53
Sulphite Manufacture and Equipment	53
Manufacture of Paper Threads	54
Waterproofing of Paper	55
Fourdrinier Wire Tension	56
The New Chemist	56

Obituary:

John H. Purdy	32

Market Review:

N. Y. Market Review	62
Market Quotations	63
Miscellaneous Markets	66

Want and For Sale Advertisements, Pages 68 and 69

XUM

RECOMMENDATIONS ARE MADE ON PAPER STANDARDIZATION

Officials of the Bureau of Standards and Advisory Committee From the Paper Industry Meet at Washington—Outline Some of the Important Problems That Should Be Given Early Consideration—Number of Sub-Committees are Appointed To Assist In The Proposed Classification of the Various Grades of Paper—Committee Confers With Secretary of Commerce Hoover.

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 17, 1922.—The work already under way, and plans under consideration for the standardization of paper was described at a two-day conference at Washington between Dr. S. W. Stratton, director of the Bureau of Standards and F. A. Curtis, chief of the Paper Section of the Bureau, and the Advisory Committee from the paper industry for the Paper Section of the Bureau of Standards.

The proposed technical research program of the paper section of the bureau was discussed at length by the conference with special reference as to the relative importance of the several problems. The resumé of the suggestion or recommendations of the committee are as follows:

"Recommendations of the research comittee in regard to the technical program of the paper section.

"A consideration of the research program of the paper section indicates that most of the problems proposed are of importance to the paper industry. The three problems of greatest importance seem to be drying of paper, sizing, and the development of a method of measuring the color of paper.

"It is therefore recommended that:

"1. The service committee of the T. A. P. P. I. co-operate in every way possible with the Bureau of Standards in its theoretical consideration of drying, but that the practical application to paper be handled under commercial conditions, rather than on the experimental paper machine at the bureau, unless new types of drying apparatus can be developed.

"2. That three members of this committee co-operate closely in regard to the study of sizing and that they advise and assist the paper section on this problem.

"3. That every effort be made to develop a method for measuring the color of paper and that the committee will assist in furnishing samples when required.

"4. That the study of foreign and domestic clays be continued, that this problem be taken up with the book paper manufacturers' association and that tests under commercial conditions be made at several book mills.

"5. That every effort be made by the paper section to standardize the methods of determining the various physical qualities of paper, such as bursting, breaking, folding, and tearing strength.

"6. That the committee is not in a position to discuss fully the problems of beating and the relation of finish to printing qualities and postpones recommendations on these two problems until the next meeting."

A Proposed Classification

In connection with the work of the Bureau of Standards on the standardization of paper, several phases of this subject were discussed. A proposed classification of the various grades of paper, which is of considerable importance in the proper collection and tabulation of statistical data, was examined and a number of subcommittees appointed to assist in this work and advise the committee appointed by the bureau about a year ago. The committee also offered to assist in examining and offering suggestions for the several hundred definitions which are being written and which have already been referred to distributors and consumer organizations for criticisms.

Certain tentative suggestions of the technical committee appointed by the bureau a year ago, were also discussed. In view of the importance of the technical phase of standardization and its relation to the practical manufacture of paper, the bureau was requested to appoint from the paper industry two additional members of this technical committee, which committee was asked by the bureau to submit a report on specifications of quality, the testing of paper, the sampling of paper for test, and tolerances.

The purposes and general plan for the study of the possible simplification of sizes, qualities, and bases of weight were explained by the representatives of the Bureau, and it is hoped to have a suitable report available for the next meeting of the Committee in September.

Results of the Conference

The results of this conference with the Research Committee were: first, definite recommendations and suggestions as to the paper research program for the fiscal year; second, appointment of three committees to assist on the three major problems; third, subcommittees made available in the development of a classification and of definitions; and fourth, definite acknowledgment of the importance of the technical phase of standardization by the request for additional members to the bureau's technical committee.

Following the completion of the work of the Committee at the Bureau of Standards, a conference was held with Secretary of Commerce Hoover, during which the question of closer co-operation of the paper industry and the Department was discussed in some detail. The Secretary expressed his gratification of the way the paper committee is continuing its activity with the Bureau of Standards.

Members of Paper Committee Present

The members of the committee from the paper industry in attendance were: Arthur H. Nevius, Miami Paper Company, West Carrollton, Ohio, Chairman; M. E. Marcuse, Bedford Pulp and Paper Company, Richmond, Va.; R. Frank McElwain, Crocker-McElwain Company, Holyoke, Mass.; H. E. Fletcher, Fletcher Paper Company, Alpena, Mich.; R. S. Hatch. Hamersley Manufacturing Company, Garfield, N. J.; Fred C. Clark, Pejepscot Paper Company, Brunswick, Me.; Frank L. Stevens, Stevens & Thompson Paper Company, North Hoosick, N. Y.; H. W. Stuart, U. S. Paper Goods Company, Cincinnati, Ohio; Alexander Gilman, Allied Paper Mills, Kalamazoo, Mich; O. M. Porter, American Paper and Pulp Association, New York City, and S. L. Wilson, Graham Paper Company, St. Louis, Mo.

Urge That Tariff Rates in Paper Be Not Cut

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 18, 1922.—Arthur D. Coffin, of C. H. Dexter & Co., Windsor Locks, Conn., and W. B. Bullock, of the American Paper and Pulp Association were in Washington today in an effort to prevent the change of the tariff rates on paper as originally reported by the Senate Finance Committee.

The paper industry takes the position that inasmuch as the committee did not raise the rates as originally given in the House bill with the exception of some less important grades that there was no excuse for a cut in the rates as reported by the Finance Committee. The committee has taken the position, it is understood, that rates originally recommended should be cut to the original House figures to meet the criticism from the West. The fact that no such increase took place generally in the rates on paper, however, makes such a cut unnecessary in schedule thirteen relating to paper.

XUM

EDDY PAPER CO. REFINANCING IS PROPOSED IN A NEW PLAN

Company Is Not Insolvent by Any Means But in Common With Other Board Plants It Has Suffered Losses During the Recent Depressions and These Must Be Taken Care of—Monarch Division of Allied Paper Mills Installs New Coated Paper Drying System—J. H. O'Connell to Be General Manager of Diana Paper Co., Harrisville, N. Y. —L. S. Sterritt to Manage Eddy Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., July 18, 1922.—Complete refinancing of the Eddy Paper Company, through the adoption of a plan that aims to protect interests of the organization, stockholders and creditors alike, is proposed by officers of the concern.

The plan is outlined in a communication addressed to all stockholders and creditors by the board of directors, and will be taken up at a special meeting called Wednesday of this week. The plan follows:

1. A holding company to be organized.

2. The stockholders, both preferred and common, to surrender their stock and accept common stock of the "Holding company" in equitable proportions to be fixed by committees appointed by and representing both common and preferred stockholders.

3. The banks who are now holding as collateral to their notes, bonds of the last issue, to extend the time of payment not less than two years.

4. All unsecured creditors to be paid in full by taking seven per cent cumulative preferred stock in the "Holding company" to the amount of their respective claims. The authorized issue of preferred stock in the "Holding company" not to exceed total amount of unsecured debts of Eddy Paper Co.

5. The preferred stock in the "Holding company" accepted by the creditors, to be retired as follows:

14 2/7 per cent on or before six months from the time of the final consummation of the refinancing plan. 14 2/7 per cet each three months thereafter until finally retired in full. Preferred stock certificates to be issued accordingly.

Immediate acceptance of the proposition is urged.

Attached to the communication is a condensed balance sheet, as of May 27, 1922.

It shows in current assets items, cash and banks, $32,481.29; notes receivable, $57,401.93; accounts, less doubtful, $172,096.55; inventories, materials, stock, coal, etc., $895,622.55; total, $1,100,-200.39. Other liquid assets are notes, personal accounts and investments, $155,897.82. Permanent assets total $5,461,962.97, less $1,006,075.38 reserve for depreciation, or $4,455,887.59. Good will is listed at $3,600,000 and deferred assets at $165,425.67, giving a grand total of $9,477,411.47.

The liabilities, current payable, notes, accounts salaries and wages, are $762,580.95, accrued, interest, taxes, insurance, $137,374.-49. Reserves listed are $138,953.60. The funded debt (bond issue), $1,250,000.00, subscriptions, new bond, issue, $197,590.00. The capital stock account shows: Common, $7,000,000; preferred, $1,-766,410; stock subscriptions, $7,553.80; total, $8,773,963.80; less a deficit of $1,783,051.37 or $6,960,912.43 net.

Creditors of the company are informed that banks with claims of $400,000 have already agreed to extend the time of payment for two years "upon condition, however, that merchandise creditors accept this plan."

"The plan noted above was proposed when it became apparent that our stockholders would not subscribe for the bond issue offered them" said C. A. Blaney, president of the company. "Of the proposed $1,000,000 issue, but $197,590.00 being taken to date. We should have at least $1,000,000 working capital and are aiming to secure that, as well as protect the interests of the company, stockholders and creditors.

"Submitted to numerous creditors and financiers, it has met their unqualified approval and is endorsed as eminently fair in every particular.

"The Eddy Paper Company, is not insolvent by any means. But in common with numerous board plants, it has suffered heavy losses during the recent depression. These must be taken care of."

A new coated paper drying system is being installed in the Monarch division of the Allied Paper Mills, by the J. O. Ross Engineering Company, New York and Chicago. The improved methods substitute the use of hot air for steam, increasing the drying power from 15 to 25 per cent and at the same time lowering the temperature in the drying room at least 40 degrees.

The Kalamazoo Blow Pipe and Sheet Metal Company, is now building an elaborate overhead line of galvanized iron ducts for the purpose of carrying the hot air current. This air is forced directly from overhead on the surface of the paper, while a battery of overhead fans remove all foul air from the room.

The work is being done for five coating machines at this time and the second unit of five machines will be treated in similar manner in the immediate future.

L. S. Sterritt to Manage Eddy Paper Co.

L. S. Sterritt, of Lockport, N. Y., has been appointed general manager of the Eddy Paper Company, Three Rivers and White Pigeon, to succeed A. B. Thomas resigned. Mr. Sterritt comes to the Kalamazoo valley district highly recommended. He has held important positions at Lockport, Chicago and Middletown, Ohio.

Mr. Thomas is making no effort at this time to secure connections for the future. "I intend to rest during the summer months" said Mr. Thomas. "Early in the fall I will be able to announce future activities."

J. H. O'Connell Goes With Diana Paper Co.

John H. O'Connell, president of the American Pulp and Paper Mill Superintendents Association and formerly general superintendent of the King Paper Company, of Kalamazoo, has accepted the position of general manager of the Diana Paper Company, Harrisville, N. Y., and has left this city to take up his duties. Mr. O'Connell has been instructed to make a special study of conditions at the mill, both in the pulp and paper divisions, with an idea of reductions in costs.

"My departure from Kalamazoo will have no effect on the location of the headquarters of the American Pulp and Paper Mill Superintendents Association" said Mr. O'Connell. "The offices will remain here in charge of the secretary, Miss P. C. Barrett. She has demonstrated her ability to handle all details that may arise. I expect that the association offices will be moved from the Regent Theatre Building to the Hanselman Building. They will be thoroughly equipped, the present furniture being installed temporarily."

General Trade News

Charles E. Nelson, president of the MacSimBar Paper Company, Otsego, has been named chairman of the Board Division of the Bureau of Standards. He has for years been active in the deliberations of this body.

George L. Irvine, president of the Saniwax Paper Company, is recovering steadily from a recent serious operation for appendicitis. He is still confined to Bronson hospital.

Ralph Tuttle, traffic manager of the American Boxboard Company, Grand Rapids, was in Kalamazoo the past week in conference with George J. Bolender on a freight rate case. Mr. Tuttle is representing the interests of the O. W. Thum Company, Grand Rapids.

XUM

PRODUCTION OF WOOD PULP DURING THE MONTH OF MAY

According to Figures Just Issued by the Federal Trade Commission Ground Wood Stocks Equalled Forty Days' Average Output, News Grade Sulphite Mill Stocks Equalled Nine Days' Average Output, Bleached Sulphite Mill Stocks Equalled Six Days' Average Output, Easy Bleaching Mill Stocks Equalled Seven Days' Average Output, Sulphite and Stocks Equalled Fourteen Days' Output.

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., July 17, 1922.—In connection with the Federal Trade Commission's current statistics of the paper industry, a summary of the monthly reports from manufacturers of wood pulp and other kinds of pulp used in paper making is submitted herewith for the month of May, 1922. The table shows the kind of pulp, the stocks, production, pulp used and shipments for the month. The pulp shipped during each month represents only pulp shipments to a concern diffierent from the one producing it. Loss of production is shown by giving the idle machine time reported by each company for each kind of pulp.

Pulp Production

The following is a tabulation of the production, pulp used by the company producing it, shipments to outside concerns, and stocks of finished pulp in tons of 2,000 pounds on an air-dry basis, for May, 1922, compared with May, 1921, for the operating mills. The average production is based upon the reports covering the years 1917 to 1921, inclusive, and the average stocks are based upon the stocks carried for the years 1919, 1920 and 1921.

	Number of mills	On hand first of month Net tons	Production for month Net tons	Used during month Net tons	Shipped during month Net tons	On hand end of month Net tons
Ground Wood Pulp:						
May, 1922	158	159,712	167,197	134,702	9,340	182,868
May, 1922	168	217,308	97,963	80,750	8,532	226,089
May, 1920	168	126,693	172,341	132,665	13,396	152,973
May, 1919	162	175,026	144,146	118,129	8,692	192,351
Average		.....	119,756	.....	.....	147,073
Sulphite, News Grade:						
May, 1922	62	22,976	61,654	55,347	8,679	20,604
May, 1921	65	23,345	42,167	36,541	6,721	22,250
May, 1920	64	18,348	71,422	63,507	10,610	15,553
May, 1919	62	28,346	52,740	47,491	7,162	26,433
Average		.....	62,530	.....	.....	20,685
Sulphite Bleacher:						
May, 1922	32	9,400	38,244	25,450	12,438	9,756
May, 1921	33	13,707	27,793	17,198	7,688	16,614
May, 1920	32	4,754	50,010	26,652	23,816	4,296
May, 1919	31	16,320	39,994	21,538	18,324	16,452
Average		.....	41,392	.....	.....	9,507
Sulphite, Easy Bleaching:						
May, 1922	10	1,053	5,066	3,420	1,013	1,686
May, 1921	10	776	8,170	3,838	3,814	1,294
May, 1920	7	574	6,896	3,615	2,997	858
May, 1919	8	2,930	6,421	3,518	2,914	2,919
Average		.....	6,240	.....	.....	1,346
Sulphite Nitscherlich:						
May, 1922	7	2,748	5,901	3,455	3,019	2,175
May, 1921	7	2,277	4,883	3,991	1,072	2,097
May, 1920	7	1,786	5,338	4,086	1,233	1,805
May, 1919	7	2,450	6,363	3,886	2,649	2,278
Average		.....	6,370	.....	.....	1,831
Sulphate Pulp:						
May, 1922	22	7,394	21,113	16,112	5,931	7,264
May, 1921	20	7,140	12,856	9,432	3,287	7,277
May, 1920	21	4,368	18,799	11,262	7,769	4,136
May, 1919	22	7,091	12,848	8,943	2,509	8,487
Average		.....	13,572	.....	.....	6,499
Soda Pulp:						
May, 1922	28	9,467	31,061	18,878	13,650	8,000
May, 1921	27	9,545	21,730	13,104	7,781	10,390
May, 1920	27	3,898	38,243	20,124	17,871	4,146
May, 1919	28	9,620	30,539	17,826	13,300	9,033
Average		.....	30,992	.....	.....	6,931
Other than Wood Pulp:						
May, 1922	5	146	658	622	81	101
May, 1921	5	194	539	470	58	205
May, 1920	5	194	766	756	95	109
May, 1919	7	65	1,016	941	42	98
Average		.....	832	.....	.....	154
Total—for all grades:						
May, 1922		212,896	331,694	257,986	54,151	232,453
May, 1921		274,292	216,101	165,324	38,853	286,216
May, 1920		160,515	363,815	262,667	77,787	183,876
May, 1919		241,848	294,067	222,272	55,592	258,051
Average		.....	281,684	.....	.....	194,026

Total stocks of all grades of pulp in the mills on May 31, amounted to 232,453 tons. Mill stocks of Groundwood, Bleached and Easy Bleaching increased during the month.

Ratio of Stocks to Average Production

Comparing the stocks on hand at the domestic pulp mills at the end of the month with their average daily production based on the reports covering the years 1917-1921, inclusive, the figures show that:

Groundwood pulp stocks equal 40 days' average output.
News grade sulphite mill stocks equal 9 days' average output.
Bleached sulphite mill stocks equal 6 days' average output.
Easy Bleaching sulphite mill stocks equal 7 days' average output.

(*Continued on page 20*)

Loss of Production

MONTH OF MAY, 1922, (WITH MAY, 1921, FOR COMPARISON)

Grade	Lack of Orders 1922	Lack of Orders 1921	Repairs 1922	Repairs 1921	Other Reasons 1922	Other Reasons 1921	Total 1922	Total 1921
Ground Wood Pulp:								
Number of grinders	72	138	101	138	186	285	359	561
Total hours idle	12,157	41,940	9,902	13,967	32,726*	54,020	54,785	109,927
Sulphite, News Grade:								
Number of digesters	12	36	18	11	9	33	39	80
Total hours idle	4,912	8,666	902	584	2,704	7,401	8,518	16,651
Sulphite, Bleached:								
Number digesters	24	54	12	23	10	9	46	86
Total hours idle	5,310	7,563	872	5,410	70	3,646	6,252	16,619
Sulphite, Easy Bleaching:								
Number of digesters	7	13	0	3	3	0	10	16
Total hours idle	420	1,890	0	261	180	0	600	2,151
Sulphite, Mitscherlich:								
Number of digesters	0	9	6	5	9	0	15	14
Total hours idle	0	3,672	660	500	4,156	0	4,816	4,172
Sulphate Pulp:								
Number of digesters	4	12	15	0	3	8	22	20
Total hours idle	641	2,087	977	0	100	2,927	1,718	5,014
Soda Pulp:								
Number of digesters	69	91	6	23	25	16	100	130
Total hours idle	9,201	16,392	860	1,518	2,090	2,402	12,151	20,312
Other Grades:								
Number of digesters	4	2	0	2	2	4	6	8
Total hours idle	1,180	360	0	64	552	948	1,732	1,372
Total number machines	192	355	158	205	247	355	597	915
Total hours idle	33,821	82,570	14,173	22,304	42,578	71,344	90,572	174,218

*Includes 8,334 hours due to water and power conditions.

XUM

A New Sulphite for Book Mills!

M D
L

CLEAN

GOOD STRENGTH HIGH COLOR

UNBLEACHED SULPHITE

Made by the MO och DOMSJÖ A.-B., STOCKHOLM, SWEDEN

This pulp contains all the necessary requirements demanded by Mills wanting an exceptionally high color, clean, strong sulphite

Wire us for Samples and Quotations
For Shipments over the Balance of the Year

A. J. PAGEL & CO., Inc.

347 Madison Avenue New York City

HOLYOKE IS NOT CONCERNED BECAUSE OF COAL SHORTAGE

Practically No Coal Has Been Used Since the First of the Year Because of the Excellence of the Water Power—Adam Wilkinson, Labor Commissioner of the American Writing Paper Co. to Meet with Representatives of Unions Relative to Revision of Overtime Pay—Carew Mfg. Co. of South Hadley Falls, Mass., to Build One of the Finest Filter Houses in the Country.

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., July 17, 1922.—Paper manufacturing plants of this city are in no danger of a shut down, nor will there be any serious situation industrially speaking in this city for some months, despite the coal and railroad strikes. This is the opinion of Patrick J. Dowd, manager of the traffic bureau of the Chamber of Commerce.

Mr. Dowd's survey of the local situation has brought to light the fact that the bituminous coal supply in this city has been considerably conserved because of the unexcelled water supply here. The Holyoke Water Power Company has used practically no coal since the first of the year owing to the excellence of the water supply.

Carew Mfg. Co. to Build Filter House

A filter house, which will be one of the finest in the country, is now being constructed for the Carew Manufacturing Company of South Hadley Falls. The filter house will contain a laboratory in which only the most modern of equipment will be installed. The Casper Ranger Construction Company of this city is constructing the filtering house.

E. N. White to Be Candidate for Mayor

Edward N. White, treasurer of the White & Wyckoff Manufacturing Company of this city, was announced during the past week as a candidate for Mayor of this city. Mr. White left this city for an extended trip the morning of the day that the announcement was made. This announcement came from close friends of Mr. White.

J. L. Wyckoff, president of the White & Wyckoff Company on hearing of the report that Mr. White was to run for the office of chief executive of this city promptly denied the report. Following this denial those friends of Mr. White, who announced his candidacy, reiterated their statement and said they were correct.

To Confer with Unions

Adam Wilkinson, labor commissioner of the American Writing Paper Company, will meet tomorrow with representatives of the Eagle lodge of papermakers, the millwrights' union and the engineers union for another conference relative to the revision of overtime pay. It is proposed to cut the double pay for overtime to 1½. The representatives of the unions will have conferred with their respective organizations before this conference is held. The first conference was held last Tuesday.

To Go with Kalamazoo Stationery Co.

Harry Burkhardt of Waldo street, this city, has left for Kalamazoo, Mich., to become superintendent of the Kalamazoo Stationery Company. Mr. Burkhardt has been Western New England representative of the Louis Shepherd Company of Boston.

Col. Franklin Speaks on Science of Color

Col. B. A. Franklin, vice-president of the Strathmore Paper Company of Mittineague, addressed the members of the Springfield Rotary Club at the Hotel Kimball at Springfield during the past week. "The Science of Color" was the subject of Col. Franklin's talk.

Col. Franklin said that the large part that color plays in life is not appreciated. Some colors attract, and some repel, he said, and it is a person's duty to find out which are the most beneficial and restful.

Mistakes in advertising which have a detrimental effect on the advertisement were discussed by Col. Franklin.

The Value of Thrift

The thrift work being carried on here at the Chemical Paper Manufacturing Company and the Crocker-McElwain Company has shown its value according to an article in "Industry" dealing with the thrift work at the local mills. Summed up here is what officials of the company think of the work:

"We believe some such plan of promoting thrift by careful, systematic cultivation of the habit of regular saving, made attractive by placing within the worker's reach practical and convenient facilities, has proved to be worth while, for, since we adopted it in our mills, there has been a steady growth, not only in the number of depositors, but also in the size of the individual accounts.

To Reopen Riverside Mill

Adam Wilkinson, labor commissioner of the American Writing Paper Company, today announced that preparations are being made for the re-opening of the Riverside No. 1 division mill in this city. This mill has been closed down for practically 18 months. There is every indication of a betterment in local papermaking circles.

WOOD PULP PRODUCTION FOR MAY

(*Continued from page* 18)

Nitscherlich sulphite mill stocks equal 9 days' average output.

Sulphate mill stocks equal 14 days' average output.

Soda pulp mill stocks equal 7 days' average output.

Mill stock of "other than wood pulp" equal 3 days' average output.

Total mill stocks of all grades equal 21 days' average output.

Loss of Production

The idle machine time of grinders and digesters reported to the Commission for the month of May, 1922, is shown in detail in the attached tabulation. The number of grinders and digesters includes only those for which idle time was reported during the month. The total number of machines may include duplications because the reports may count the same machine twice if idle for different reasons during the different parts of the month. The reasons tabulated for lost time are lack of orders and repairs. "Other Reasons" include water conditions, etc. The time lost in May, 1921, is shown by grades and reasons for purposes of comparison. Neither the number of machines nor hours idle include the idle machines and the time lost in 13 mills not in operation during the month.

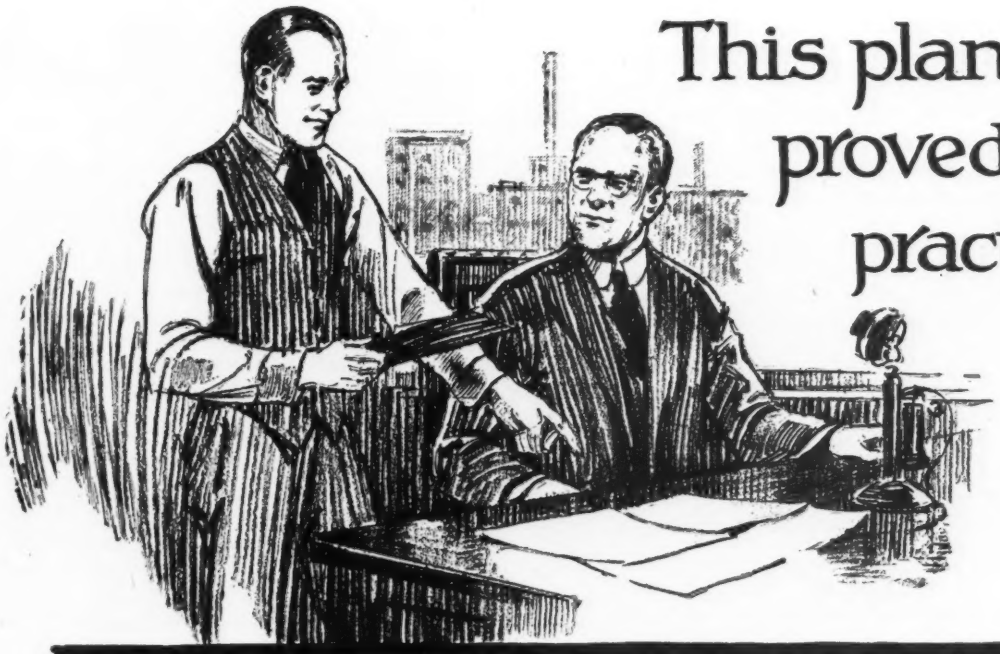
Chicago Salesmen Plan October Meeting

[FROM OUR REGULAR CORRESPONDENT.]

CHICAGO, July 17, 1922.—The Chicago district of the Salesmen's Association of the Paper Industry has decided not to attempt to hold a summer outing, like those recently held at Boston and New York, but to concentrate their efforts on making the October meeting of the association a notable event. The meeting will be held Tuesday, October 17, during the Chicago paper week and fall business conference of the American Paper and Pulp Association.

The first definite step taken was the securing of Edgar A. Guest, the famous newspaper humorist and poet for the banquet the evening of convention day, and efforts are under way to secure some other notables for the banquet program, as well as for the sessions during the forenoon and afternoon.

XUM



This plan has proved to be practical

Put our new self-cleaning shower pipes on your wet machines, deckers and screens. Put a BIRD SAVE-ALL in the basement to save the stock in your waste water and to filter the water for using over in the showers.

Save both stock and water and save more stock because you are saving water, too.

Let us tell you how to put this plan into profitable operation.

BIRD MACHINE COMPANY
South Walpole, Mass.

Western Representative
T. H. Savery, Jr., 1718 Republic Bldg., Chicago Ill.
Canadian Builders of Bird Machinery
Canadian Ingersoll-Rand Co., Ltd.
260 St. James St.
Montreal, Canada

88-226

BIRD SAVE-ALL

XUM

TRADE IN PHILADELPHIA SHOWS MORE IMPROVEMENT

Representatives of Fine Mills Urge the Placing of Orders Now to Guard Against Advances Later on. Philadelphia Mfg. Co. Operating Its Plant at Manayunk at Full Capacity. Standard Paper Mfg. Co. Makes Numerous Improvements at Its Plant at Richmond, Va. Norber A. Considine of the Paper House of Pennsylvania Tells How Economies Are Effected Abroad.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., July 18, 1922.—Elements which have entered into the paper situation to a larger or smaller extent, are the continuation of the coal strike and the threat of a tie-up on the railroads and as well the freight reductions which went into effect on July 1. But just to what extent these elements were responsible for the decided improvement in selling conditions which have been experienced during the last two weeks and particularly the last seven days, is a matter of speculation.

During the week the big plant of the Philadelphia Paper Manufacturing Company, in Manayunk, went on full time operation of all its machines including what is claimed to be the world's largest box board producer, the monster two-story affair, with its rated capacity of 150 tons per day. Over the Delaware, in South Camden, the McAndrews & Forbes Company has at least a month's orders ahead, an unusual condition for this period of the year, and advances of its quotations are reported. The paper stock packers bear out a story of increased board production by their reports of the rapid movement of mixed and commons millward, to outside points as well as in the city. This demand has had the effect of bringing quotations up generally to the outside figures and therefore averaging about one dollar a ton more than the price which hitherto has obtained. The packers believe that a further advance shortly is to take place because the improvement in prices in these mixed and common papers has not been commensurate with the advance in board prices, and because those stock prices even with the slight advance which has taken place are not yet high enough to make them attractive to the small packers and the collectors of this grade of stock. The comparatively small volume that is coming into the warehouses of the larger packers—and which is moving out just as quickly as it can be baled up, is drawn from the larger industrial establishments and others having waste in quantities and does not represent a house to house collection. All other grades of paper stock with the single exception of hard white, are moving along exceedingly well and the stock dealers are in quite a contented frame of mind although they do feel that mill prices should be higher and must be higher unless the activity they have enjoyed for the last fortnight does not continue. Prevailing opinion is, however, that the spurt which has been enjoyed is not a transient one and that its continuance may confidently be counted on.

Possibilities of Higher Prices

The representatives of the fine paper mills who have visited the city during the last week or so, have all tried to impress upon the distributors the necessity for placing large orders at this time to guard against a shortage which they say will develop in the fall and also to take advantage of present prices against an advance that is imminent. Though the buyers are taking these stories with a grain or two of salt, they do believe that the arguments advanced by the mill representatives are well founded and that higher prices may be looked upon with the coming of September or perhaps even sooner, although not to such an amount or as extensively as the mill representatives suggest. Certainly at the present day mill prices firmly are held and while there have been no actual advances, several of the producers have withdrawn standing prices although they are still taking orders at the old rates. A single exception to the maintenance of the status quo in fine paper prices was noted during the week in the advance by well known bond mill of a half a cent a pound. The trade, however, points out that this mill's prices had been below those of competitors producing an equal quality of product, and that the change in price was more in the nature of a proper adjustment than of an actual advance. City demand from printers and publishers is still rather quiet although showing some tendency toward improvement but the gain is quite large from publishing centers throughout the State to which a considerable amount of Philadelphia printing still is being diverted. There is recognition of this deflection of business from Philadelphia and even the largest of the local printing plants are cutting prices in order to keep the work at home.

Most of the Philadelphia printing establishments are maintaining an all Saturday close down and there is some sentiment in the trade that it would be not inadvisable for the fine paper distributors to follow the precedent. It is believed that until September, with the printers on a five day a week working basis quite as much paper could be sold from Monday morning until Friday night as now until Saturday noon. The D. L. Ward Company, it will be recalled made what might be regarded as the initiative in this movement by giving half of its employees alternately a full Saturday holiday.

Philadelphia Mfg. Co. Goes on Full Time

The full time and full capacity operation of the plant of the Philadelphia Paper Manufacturing Company of Manayunk was the most important local mill development of the week. With the addition of the hundred and fifty ton mill the aggregate of production at Manayunk is now close to 350 tons per day. To bring to the plant the requisite amount of stock—it requiring more than a ton of mixed and commons to produce a ton of board—the company has developed what it characterizes as a most successful and satisfactory water freight service. It has now in operation eleven barges plying between Manayunk and Snyder avenue Wharf Delaware River this city and New York Bay, and it has placed a contract for six additional barges soon to be completed and even this aggregate may be supplemented. Of the total, four are now in the Philadelphia service making the trip from pier 78 South Wharves to Manayunk in four hours, and the trip to New York through the Delaware and Raritan Canal in two days each way with a two day lay-over, thus giving approximately a round trip per week. The Company estimates that in addition to more certain and expeditious receipt of stock, 200 tons constituting a barge load of stock and 150 tons a shipment of finished boards, a large saving of railroad freight charges amounting to about one-half the regular land charges, has been effected.

Trade Meetings

The Fine Paper Division of the Philadelphia Paper Trades' Association tried to get together on Thursday noon of last week but the absence out of town of a number of the members and the torrid weather prevented the meeting. The five Philadelphia distributors of the Strathmore Expressive Papers did, however, succeed in getting into conference on a broadening of the sales promotion and co-operative plan on Friday noon at which time the thermometer had fallen some degrees. Ways and means of a still more effective promotion campaign on the complete Strathmore line were discussed by the five distributors participating, the Raymond & McNutt Company, the Chas. Beck Company, the Paper House of Pennsylvania, A. Hartung & Co., Inc., and the Thomas W. Price Company, but the most important matter taken up was the question of participating in the Philadelphia Graphic Arts Exposition which is to be held in the Philadelphia Commercial Museum Bldg., in West Philadelphia in September. The Strathmore Company has decided not to participate, but though

(*Continued on page* 24)

XUM

Once in Three Months

They lubricate their felt Roll Bearings and in the meantime cut felt expense 50%.

AN Experience of a Wisconsin Mill using our special bearings

BELOIT IRON WORKS
BELOIT, WIS., U. S. A.

XUM

TRADE IN PHILADELPHIA SHOWS MORE IMPROVEMENT

(*Continued from page 22*)

there was some sentiment among the five distributors in favor of jointly taking a booth, it was finally decided not to do so.

Standard Paper Mfg. Co. Improvements

Sales manager, J. G. Sutton, of the Standard Paper Manufacturing Company, Richmond, Va., spent the latter half of last week among the paper distributors preparing the way for a National advertising campaign which the company is about to launch, all the plans having been completed. It is the company's policy to develop a far greater consumer demand for its products and to have the paper distributors prepared for it. The company recently had installed in its plant at Richmond, Va., by the Moore & White Company, of this city, a new machine and there is in contemplation another, both with unique features. Because of the difficulty experienced in the past in promptly securing its requirement of book paper for the backing of the blotting papers which are to be printed and lithographed, the Standard Paper Manufacturing Company has now developed its own book papermaking mill together with one for coating and calendering the product so that it is self contained for the complete production of all the grades of blotting which it now produces, and which consist of plain and embossed, single ply and backed, for printing, lithographing and embossing in black or in color. The company has a present day capacity of 75 tons and this of course is to be increased.

Distribution by the Champion Coated Paper Company, of its collection of all the raw materials used in its plant, and including as well an actual piece of Fourdrinier Wire Cloth, recalled to President Norbert A. Considine of the Paper House of Pennsylvania, an experience he had on his late trip to Europe. Knowing the extreme care that is taken by American manufacturers in keeping their Fourdrinier perfect and in rejecting a belt which develops the slightest imperfection, he was astounded to see in use in a paper mill in Finland a wire which not only had been patched by the insertion of a substitute a half foot square but which was still in use with that substitute repaired. Unable because of the post-War conditions to secure the regular Fourdrinier when the old one became what in this country would be regarded as useless, the enterprising Finns wove into the old belt a piece of bronze wire netting or drain screen and when it in turn became torn, succeeded in sewing it together with wire and in operating it almost as if nothing had happened. This successful persistence under adverse circumstances, appealed to him very strongly. The Paper House of Pennsylvania received at the close of last week per steamship *Michigan,* on a delayed voyage which required a time interval of two months between the loading of the paper in Finland and its delivery here, a shipment of 100 tons of news print, which because of the advance of prices recently was not unwelcome. The company has on storage in this city close to 500 tons of foreign made news, believed to be one of the largest stocks in this country.

General News of the Trade

H. B. Turner, assistant sales manager for S. S. Garrett, 3rd & Spruce Sts., left on Saturday last for an extended trip to visit important Canadian paper mills with a view of cleaning up several large contracts.

In making trade rounds last week M. S. Flint representing The Brown Company makers of Nibroc Kraft expressed the opinion that there was not likely to be a change in prices for some little time.

F. C. Van Gilder of the sales organization of Riegel & Co., who went to the West Philadelphia Homeopathic Hospital a little more than a week ago suffering from appendicitis, successfully was operated on, and though not yet able to see visitors, is making satisfactory progress.

A petition in involuntary bankruptcy was filed during the week against the Galner Press, job printers, 152 N. 6th street by the Paper House of Penna. with a claim of $627.00, the Whiting-Patterson Company $154.00 and the Photo Chromotype Co., $125.00. Several others of the fine paper houses have claims against the company, but none of very large amount. They say that a representative of the company recently requested them for stock alleging that orders were on hand and that if it were supplied, immediate payments would be made.

News of the Boston Trade

[FROM OUR REGULAR CORRESPONDENT.]

BOSTON, Mass, July 17, 1922.—Prices and conditions in the Boston market remain practically the same this week with many of the salesmen of the various paper houses on their vacations while in some houses the vacation lists have been cut down considerably because of the extra effort needed to bring in orders during the quiet summer period.

An advertisement of the Tileston & Hollingsworth Company, paper makers for more than 100 years, whose mill is in the Hyde Park, Boston, district and sales and executive office at 49 Federal street, in a recent number of *Current Affairs,* the publication of the Boston Chamber of Commerce, contained a picture of a newspaper clipping telling of a fire in the company's paper mills November 23, 1805. The story tells of the fire at the mills owned by Mr. Boies of Milton and occupied by Messrs. Tileston and Hollingsworth and places the damage at a total of $9,500, depriving the two paper men of their entire property.

The B. D. Rising Paper Company of Housatonic, Mass., sending out to the various paper houses and other customers attractive monthly calendars giving also the month before and the month after the present one. These calendars are printed on Winter White Wedding Bristol 3 ply felt which is a superfine pasted and plated wedding bristol for the finest work, and one of the Danish Line of superior papers made by the company.

Agents of the Union Bag and Paper Company in Boston this week reported that their company was running at practically full capacity now and that in contrast to the recent dullness the business is showing renewed activity. They also reported that the company's news print mill, a subsidiary company, the St. Maurice Paper Company, Ltd., is also running at capacity, day and night shifts having been arranged in order to turn out the required amount of paper each week. The company is even refusing calls for news print because it can not possibly handle any more than it has already contracted for.

The increase in price of news print in the United States has, according to several Boston paper merchants, given an added impetus to the Canadian paper and pulp industry which during the past few months has improved wonderfully over its position a year or so ago. Of course, Boston merchants explain, the effect will not be seen immediately because of the fact that many of the consumers of paper have made their contracts for the year and most of the Canadian mills have contracted for their entire output for the year.

Straw Cellulose Products Co. Formed

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Me., July 18, 1922.—The Straw Cellulose Products Company has been organized in Portland to deal in paper, pulp, pulpwood and by-products. Authorized capital stock is $1,030,000, of which $1,000,000 is common and $30,000 preferred stock, all of $100 par value. Nothing is paid in. Directors are Charles M. Drummond, president; R. B. Buzzell, treasurer; Wadleigh B. Drummond, clerk; G. M. Horne and George T. Spear, all of Portland.

XUM

FOR QUALITY PAPERS USE

A-1 BLEACHED SULPHITE PULP

MANUFACTURED BY

Kellner-Partington Paper Pulp Co., Ltd.

Borregaard **Norway**

SOLE AGENTS FOR U. S.

J. Andersen & Co.

21 East 40th Street **New York, N. Y.**

WAYAGAMACK

KRAFT PULP

Uniform in Quality
Essential for Strength Requirement

The Pulp and Paper Trading Company

21 East 40th St., New York, N. Y.

Sole Agents for United States for

CANADIAN KRAFT, Ltd. **Three Rivers, Canada**

PAPER OUTLOOK IN TORONTO GROWING MORE SATISFACTORY

Almost All Canadian Pulp and Paper Plants Are Working Well Up to Capacity and a Majority of Them Are Filled Up with Orders for Some Time—Appleford Co. Ltd., Is Formed with Capital of $1,500,000 to Purchase the Entire Capital Stock of the Appleford Counter Check Book Co. Ltd. and the British American Wax Paper Co.—Rudd Paper Box Employees Have Outing.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., July 15, 1922.—Although there is a seasonable dullness in most paper lines, jobbers and manufacturers report a fair volume of business with a gradual improvement all along the line and a distinctly optimistic outlook for the future. In the report for the past month of the Employment Service of Canada there is a marked improvement in the employment situation in the Dominion—a condition contributed to very largely by the pulp mills and paper manufacturing plants which are all well employed. Almost all the Canadian pulp and paper plants are working well up to capacity and a majority of them are filled up with orders for some time to come. While the pulp industry has suffered keenly, both from over-expansion, and from the trade depression, the influence of both these handicaps is gradually being removed, while the free buying of pulp and paper stocks of late on the Toronto exchanges has been accompanied by appreciating values. The news print market in Ontario is quite active, rolls selling at $3.50 car lots, f.o.b. mill and $4.25 for sheet news. Two-ton lots to weekly publishers are quoted at 4½ cents. The $7.50 increase in the American price for box board has not yet affected the Ontario market for the sale of this material which is largely used by the paper box manufacturing firms in Toronto but it is expected to cause an upward revision of prices for the commodity in the near future. Board mills and jobbers in this line are fairly busy and are disposing of a considerable quantity of goods. Writing papers are perhaps the weakest of the paper products at the present time and a few other allied lines are inactive owing largely to the fact that the printing trade is dull with some of the plants running on short time. One of the big Canadian book paper mills, with headquarters in Toronto, reports a steady output and jobbers in this line are having a fair turn-over with splendid business in June and the early part of July. One mill reports orders for book papers in hand for six weeks steady operations. The wrapping paper and paper bag trade is enjoying a fair amount of trade for this season of the year and there is a distinct improvement in the demand for coated papers. The Georgetown Coated Paper Mills report a steady demand for their product and although not operating to full capacity at the moment they say that the outlook warrants full-time working of their mill very shortly. The tissue and toilet paper trade is stable, with prices firm and unchanged since April 20. Both mills and jobbers report a fair business with rather cautious buying characterizing the market. Kraft manufacturers are fairly busy, but despite the fact that stocks in the hands of the jobbers are low, the general tendency is to buy very sparingly. There is considerably more activity in the pulp market and orders are coming in freely but without any strengthening in prices. Groundwood, which failed to move in line with chemical pulps, is now selling more freely but at unsatisfactory prices. Canadian manufacturers report that Europe is buying more freely from Norway and Sweden which has affected the Dominion market for pulp to some extent.

Appleford Co., Ltd., Formed

The Appleford Company, Limited, of Hamilton, Ont., has been formed with an authorized capital of $1,500,000, divided into 10,000 eight per cent preference cumulative shares of $100 par value each, and 5,000 common shares of $100 par value each, to purchase the entire capital stock of the Appleford Counter Check Book

(*Continued on page 28*)

PHOTOGRAPH TAKEN AT THE SUMMER MEETING OF THE CANADIAN TECHNICAL SECTION, SHOWING O. F. BRYANT, CHAIRMAN, AFTER INITIATION AS THE GREAT BIG CHIEF OF THE WAZALUKUNIXPOPOPACATIZELS

Niagara Beaters Do Save Power

Cutting 43% in power consumption—that is the record made by one user of Niagara beaters. The figures produced below give full details. This paper-maker is producing as much with one Niagara as was formerly turned out in two Holland engines.

True—the one Niagara required a larger motor than either of the old beaters, but so great is the speed of Niagara that *the HP. hours used per ton of stock produced is materially less.* Other savings besides power alone result in the use of Niagara beaters and a better paper can be made. Let us send you full particulars.

Valley Iron Works Co.

***Plant*—Appleton, Wis.**

***New York Office*—350 Madison Ave.**

Here is the PROOF—

A Saving of 43 Percent

Furnish: Ground Wood and Bleached Sulphite for Book Papers.

Power Installed: 100 HP. for 1—2000 lb. Niagara beater; 150 HP. for 2—2000 lb. Holland beater

	2000 lbs. Niagara			2000 lbs. Holland		
Operation	Time in Hours	Power in HP.	Consump. in HP. Hours	Time in Hours	Power in HP.	Consump. in HP. Hours
Furnishing	¼	60	15	5/12	40	17
Beating	1/5	100	20	7/12	70	41
Emptying	1/20	80	4	¼	45	11
Total	½		39	1¼		69
	39 HP. hr. used per ton of Stock produced			69 HP. hr. used per ton of Stock produced		

Saving— $\frac{69-39}{69}$ = 43% Saving in Total Power Consumption.

Trade Mark Department

CONDUCTED BY NATIONAL TRADE-MARK CO., WASHINGTON, D. C.

The following are trade-mark applications pertinent to paper and pulp field pending in the United States Patent Office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Barrister building, Wshington, D. C., or Bush building, 130 West Forty-second street, New York, trade-mark specialists.

As an additional service feature to its readers the PAPER TRADE JOURNAL gladly offers to them an advance search free of charge, on any mark they may contemplate printing or registering.

SUNRISE—No. 163,092. C. P. Lesh Paper Company, Indianapolis, Ind. For writing, printing, and book paper.

E. S. C.—No. 162,578. Rose & Frank Company, New York. For tissue paper mainly used for carbonizing purposes.

E. M. C.—No. 162,577. Rose & Frank Company, New York. For tissue paper mainly used for carbonizing purposes.

E. H. C.—No. 162,576. Rose & Frank Company, New York. For tissue paper mainly used for carbonizing purposes.

ENCORE—No. 161,002. Fox River Paper Company, Appleton, Wis. For writing paper and ledger.

PARAGON—No. 143,544. The C. L. Laboiteaux Company, Cincinnati, Ohio. For strawboard, box board, binders' board, fiber board, backing board, plain chip board, pasted container board, pasted strawboard, and particularly pasted chip board.

MT. TOM MILLS—No. 157,293. American Writing Paper Company, Holyoke, Mass. For writing and printing papers.

MT. HOLYOKE MILLS—No. 157,294. American Writing Paper Company, Holyoke, Mass. For writing and printing papers.

GUILD—No. 159,752. Guild Products Corporation, Philadelphia, Pa. For blank books, loose-leaf ledger, binders, loose leaf sheets, indexes for loose leaf equipment, post binders, loose-leaf ring binders, stenographers' note books, typewriting paper, paper, scratch pads, tablets, envelopes, diaries, blotting paper, collunar pads, box files, pens, stell, penholders, pencils, rubber bands, rubber erasers, card cabinets, index cards, guide cards, folders, vertical file guides, pencil sharpeners, fountain pens, desk pads, clips, clamps, fasteners.

GENERAL—No. 162,705. West Disinfecting Company, New York. For paper towels.

PAPER OUTLOOK IN TORONTO

(*Continued from page 26*)

Company, Limited, of Hamilton, and the British-American Wax Paper Company, Limited, Toronto. It is proposed to sell $635,000 of preference shares to cover the purchase of the two companies and to provide $100,000 working capital. The Appleford Counter Check Book Company, under the successful management of L. M. Appleford, has been in operation in Hamilton for thirteen years and gross sales have grown from $23,000 the first year to over $750,000 in 1920-21. The British-American Wax Paper Company, which is located on Carlaw avenue, Toronto, is the pioneer wax paper company in Canada, having been in successful operation for over sixteen years.

Rudd Paper Box Co. Outing

The executive staff and employees of the Rudd Paper Box Company, Limited, Richmond street, Toronto, held their fourth annual picnic across the lake to Niagara on July 18, when scores of the workers and their friends enjoyed a splendid outing. The picnic was of the good old-fashioned variety with impromptu ball games and other athletic events and a couple of meals served in true picnic style. Prizes for the winners in the various events were presented by the General Manager of the Company, W. P. Bennett.

General News of the Trade

Fire, which broke out in a business block in Kingston on the morning of July 8, caused about a thousand dollars damage to the Fisher paper box plant, which is a branch factory of F. W. Fisher & Co., 92 Sherborne street, Toronto. The loss was fully covered by insurance.

John Martin, head of the John Martin Paper Company, Winnipeg, was in Toronto a few days ago, on his way back from an extended business and pleasure trip to Europe, where he visited the British Isles, Italy and France.

S. F. Duncan, secretary-treasurer of the Provincial Paper Mills, Limited, University avenue, Toronto, is in Port Arthur looking over the new book paper mill which the company has in course of construction at that point. Excellent progress is being made with the building which it is hoped to finish this fall. Manufacturing operations will likely not begin until early in the next year.

C. H. Featherstonhaugh, of J. C. Wilson, Limited, paper manufacturers, Montreal, was a caller on the Toronto paper trade during the past week.

F. A. Ritchie, president of Ritchie & Ramsay, wholesale paper dealers, and head of the Georgetown Coated Paper Mills, has returned to Toronto after a six months visit, in company with his family, to England and the continent.

G. W. Pauline, of Ritchie & Ramsay, wholesale paper dealers, Wellington street, Toronto, has left, with his family, to spend an extended holiday on the Maine coast.

Consider Maguey Pulp in Paper Making

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 19, 1922.—The Department of Commerce is in receipt of a report from the American consular officer at Manzanillo, Mexico, regarding the value of the so called maguey plant for fiber and pulp for papermaking.

A new system has been devised says the report by an engineer by the name of Elie Delafond for the extraction of the pulp. In addition to pulp the plant is used for the extraction of other commodities. In part the report says:

"The results of the installation of the Delafond system by which to exploit the maguey plant are increased profits, the propagation of other plants. At present these plants are being harvested and no attempt is being made to replant them due to the small profit obtained from manufacturing pulp, however, the increased profit by the Delafond system will induce the plantation owners to take more care and scientifically to cultivate this plant."

It is understood that the paper laboratory of the Bureau of Standards has given the matter consideration and has found that the yield of the plant for pulp will be less than five per cent and would not warrant an investment of any great amount of capital until further experiments have been made.

Automatic Load Regulators for Grinders

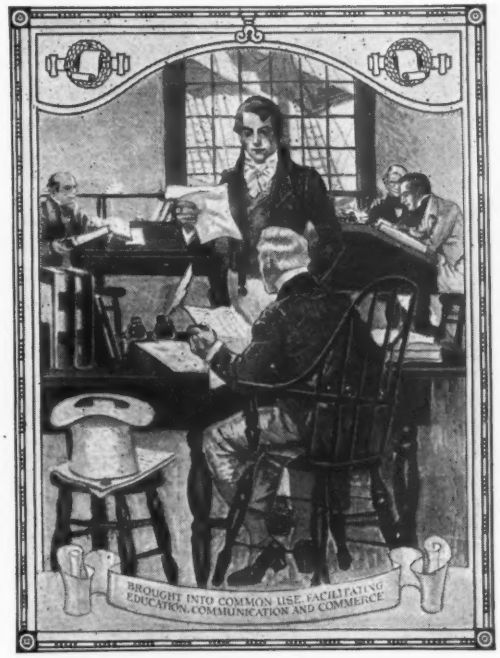
An automatic load regulator designed to correct the fluctuating load conditions of motor-driven pulp grinders is described in a publication, known as Leaflet No. 1934, which has recently been issued by the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.

With the best of care and the greatest degree of supervision in the operation of grinders and the filling of pockets, it is impossible to maintain a uniform load on the grinders. With the class of labor usually employed, the load fluctuations generally vary from 25 to 50 per cent above and below the average load, and it is not uncommon to find that 25 to 40 per cent more power is being paid for than is actually being used; i. e., power is being paid for on the basis of a peak perhaps 25 to 40 per cent higher than a curve representing the average load.

By the use of the regulator described in this publication, however, all peaks of any size can be prevented, and, if ordinary care is used, a practically uniform straight load can be secured, assuring maximum production and the most efficient and economical use of power.

XUM

Progress and Paper Making



No. 4

When "s" was Written "f"

It is interesting to look at some of the letters and documents of grandfather's day. The ink is a rusty brown and the "s" is written "f." The business documents are quaintly worded and letters are folded and sealed with wax, to be sent without an envelope.

But a change had taken place. There was enough paper at last to come into the possession of the common people. Plain folks sent letters to each other. Little business men kept ledgers. The counting house was without a typewriter and the adding machines were human, but the germ of business efficiency was there. Men were using paper in quantity.

And before very long they were using it for advertising. The business card of grandfather's day with its imitation pen flourishes and curving lines of type, has grown into process color work in the advertising pages of the magazines.

HAMMERMILL PAPER CO., *Erie, Pa.*

NEW YORK OFFICE: 291 BROADWAY

XUM

NEW YORK SALESMEN HOLD SUMMER OUTING AT MALBA

More than twenty sales representatives of prominent New York and New England paper houses held a thoroughly enjoyable "get-together" outing at Malba, L. I., Wednesday of last week under the supervision of the New York Division of the Salesmen's Association. Unlike other events of its kind, the all-day recreation at Malba started off with a bang and all who attended were kept so busy and well entertained that they did not have time to speculate upon what was coming next.

Through the unstinted efforts of D. J. McLaurin, vice-president of the New York Division of the Association and the hearty co-operation of every member of the executive committee, all arrangements were so adequately made in advance that those on the outing had nothing to do but enjoy themselves from early in the morning until almost dark.

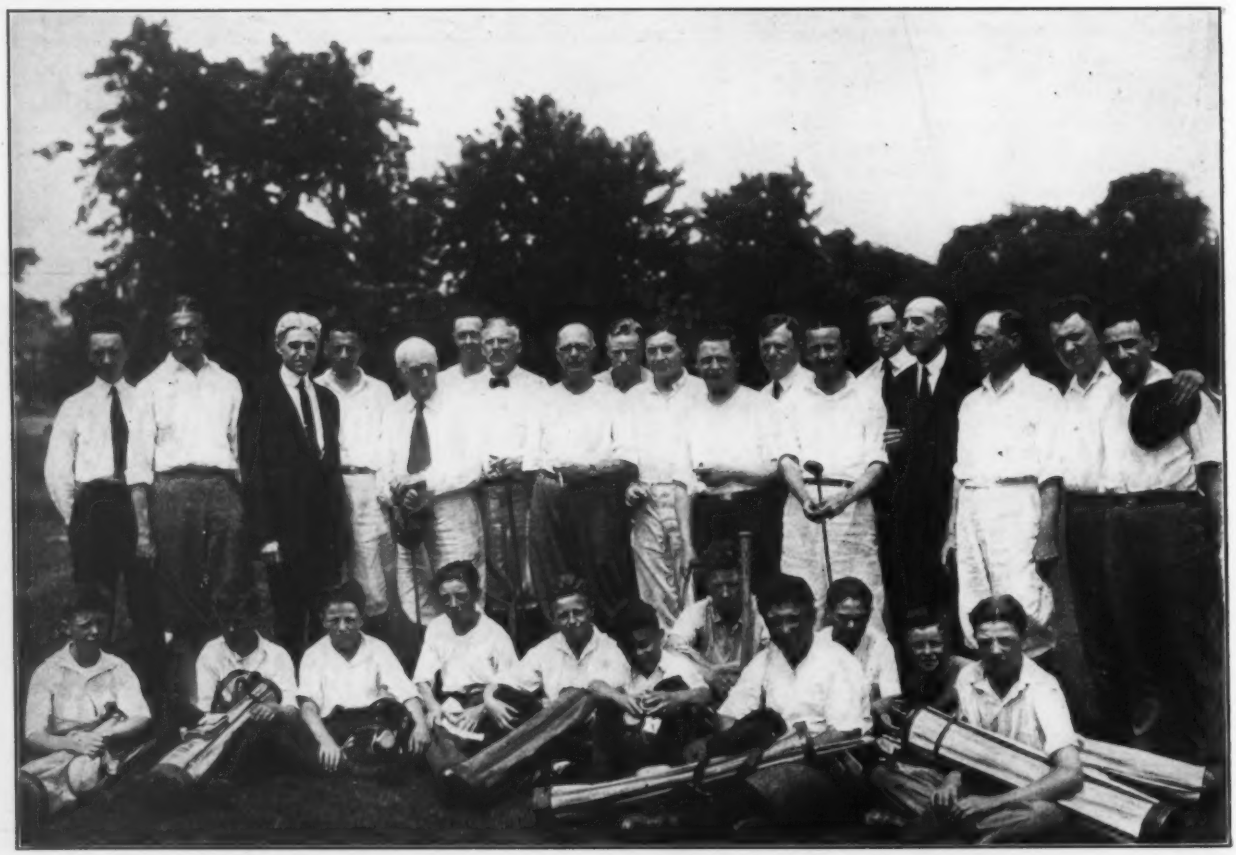
By 10.30 in the morning little groups of golfers were strolling leisurely over the fine links of the Malba Country Club, the day's headquarters for the party. Shortly after the adjacent tennis courts were occupied by those who were more adept at yielding a racquet than a midiron.

By noon practically the entire party was present and the hungry players sat down to an excellently prepared summer luncheon in their sporting togs. There was nothing of the formal or convention atmosphere to the gathering. The day was characterized by an utter relaxation from business worries and the interest of the party was much more readily secured by the telling of a good story than by a sober discussion of business conditions.

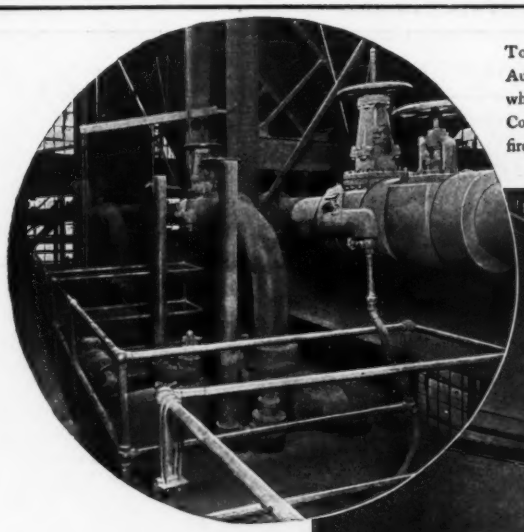
The afternoon's recreation was divided among four sports—golfing, tennising, swimming and hydroplaning. Soon after lunch, after the group had submitted to posing for the PAPER TRADE JOURNAL camera man, the beautiful, verdant links were again dotted with putting and driving salesmen and the courts were once more in action. Along about the middle of the afternoon, when everyone was beginning to feel the intensity of the July heat, L. B. Steward conducted the party to the private beach, only a few feet from his home, and graciously threw open the doors of his residence for the use of his fellow Association members. Bedecked in bathing suits, most of those present laid siege to the beach and disported themselves in the placid waters for over an hour when the announcement was made that the hydroplane was ready to take its first quota.

Motoring over to the pier where the plane was moored, an air of eager anticipation comingled with some doubt was apparent. Due to the fact that the day was fast waning and it was time for supper at the country club, the aeroplane feature of the entertainment was a short one, and soon the entire group was seated about one long table to an eight or nine course banquet, complete in every respect from lobster cocktails to cigars. At the supper H. H. Reynolds, of the B. D. Rising Paper Company, Housatonic, Mass., and president of the Salesmen's Association, congratulated the assemblage on having such a large representative group of the New England salesmen present and expressed confidence that the New York men would reciprocate this interest.

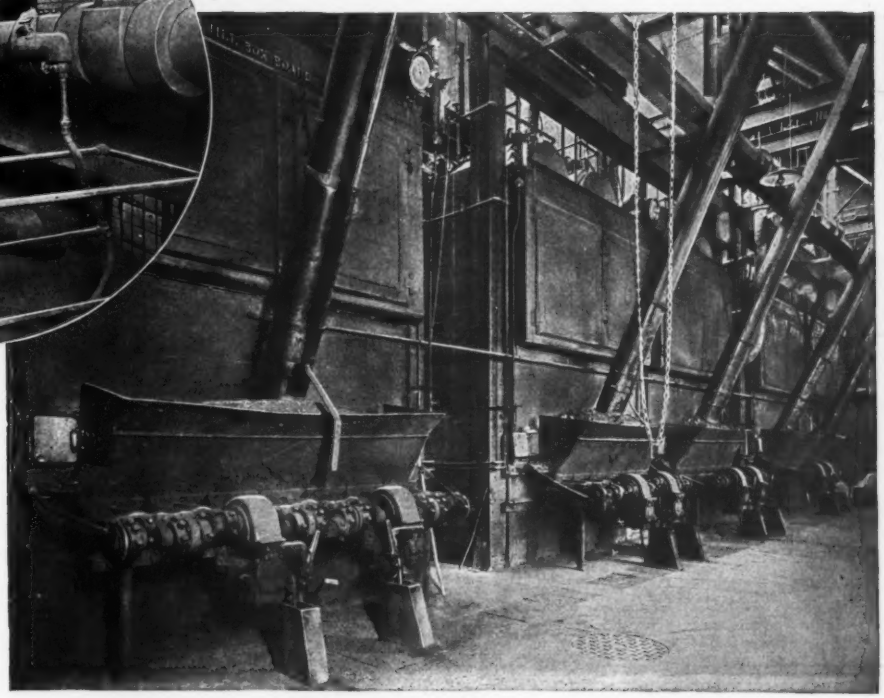
(*Continued on page 32*)



PHOTOGRAPH TAKEN AT THE SUMMER OUTING OF NEW YORK PAPER SALESMEN, HELD AT MALBA, L. I.



Top view of boiler and steam connections. Automatic valves admit steam to the main line when it builds up above a predetermined pressure. Conversely, when the pressure falls due to banked fires, the valves cut off the boiler.



Five 518-b. hp. HEINE H-Type Boilers operating at 125 pounds steam pressure, furnish power, heat and steam for processing. Pulverized bituminous coal is fed to Riley underfeed stokers.

Another modern plant installs HEINE Boilers

THE Haverhill plant of the Robert Gair Company, where paper and box-wood are made, uses steam for power and heating.

Five 518-b.hp. HEINE H-Type Boilers have been operating there for five years and in a satisfactory manner. The three top and three bottom rows of tubes are washed every five weeks and all tubes twice a year. This has been found to be good practice and the tubes are in excellent condition.

Clean heating surface means long boiler life and better fuel economy. How often to clean a boiler depends upon local conditions of fuel and water.

HEINE *Advantages*

A feature of HEINE H-Type construction is the convenience of cleaning. Soot and dust are blown from tubes by a series of steam nozzles provided with every boiler. A number of tubes can be washed out by the removal of only one hand-hold plate. Ability to clean from the ends characterizes HEINE H-Type installations. It is possible to erect a solid bank of boilers without alleys between them. HEINE Boilers are the natural choice for industries seeking performance with economy.

Heine Boiler Company

SAINT LOUIS, U.S.A.

2024

XUM

Obituary

John H. Purdy

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, July 17, 1922.—John H. Purdy who had spent more than two score of his 57 years of life in the Philadelphia paper world, centering at South Marshall and Ranstead streets, died during the week at his home 5433 Willows avenue, Philadelphia. The immediate cause of death was hardening of the arteries. He had been ill for the last two months. Mr. Purdy was widely known and liked in the Philadelphia paper world. He first became connected with it as a young man, with Philip Rudolph & Son, then located on South Marshall street, between Ranstead and Market streets. Subsequently he became a member of its sales organization, and afterwards established himself in a general paper brokerage business specializing, however, on coarse papers and box board, and handling considerable quantities of the product of the Frank P. Miller Paper Company, East Downingtown, Pa. He maintained, however, a warehouse at 3806 Lancaster avenue and there was engaged in the manufacture of tablets. He is survived by a widow and a daughter.

NEW YORK PAPER SALESMEN MEET

(*Continued from page* 30)

Brief talks were made by several of the salesmen following which Mr. McLaurin made announcement of the prize awards for the day's sports. F. J. Brower, Liberty Paper Company and Warren B. Bullock, Publicity Director of the American Paper and Pulp Association, were the two golf winners and will receive gold medallions from the executive committee. Those receiving the tennis prizes were H. F. Lee, of the PAPER TRADE JOURNAL, awarded first prize of a handsome combination cane and umbrella, and D. J. McGreen, of the Liberty Paper Company, second prize, consisting of an order for one dozen tennis balls. In the singles, McGreen defeated McLaurin and Lee defeated Cornell, of *The Paper Mill*. In the doubles, McLaurin and Lee won two successive sets from McGreen and Cornell, 6—2 and 6—0.

The following men attended the outing: R. C. Pierce, Crane & Co., Dalton, Mass.; C. K. Wadham, Z. & W. M. Crane, Dalton, Mass.; H. A. Casey, Chemical Paper Manufacturing Company, Holyoke, Mass.; J. A. Howe; F. J. Brower, Liberty Paper Company, New York; D. J. McGreen, Liberty Paper Company; O. M. Porter, American Paper and Pulp Association; J. D. McLaurin, Liberty Paper Company; H. H. Reynolds, B. D. Rising Paper Company, Housatonic, Mass.; Warren B. Bullock, American Paper and Pulp Association; T. C. Walsh, Hollingsworth & Vose Company, Boston, Mass.; D. H. Ross, Kalamazoo Vegetable Parchment Company; A. G. Lutz, Invincible Pulp and Paper Corporation, New York; W. S. Cummings, Chemical Paper Manufacturing Company, Holyoke, Mass.; D. W. I. Mulford, Crane & Co., New York; H. T. Bensel, International Paper Company, New York; L. B. Steward, New York; L. D. Post and John Cornell, *The Paper Mill*, and H. F. Lee of the PAPER TRADE JOURNAL.

New Mileage Bill Will Effect Big Saving

The Interchangeable Mileage Bill recently passed by Congress, will affect substantial savings in railroad travel for more than 600,000 people. Not only will traveling salesmen benefit by this measure, but so will buyers in their trips to market, and others who travel to any extent.

"The bill directs the Interstate Commerce Commission to require the issuance of an Interchangeable Mileage Book, good on all roads," said A. M. Loeb, President of the National Council, commenting on the successful conclusion of the Council's fight for the bill.

"Heretofore the Interstate Commerce Commission indicated, when appeals were made for a moderation of rates, that it was not vested with the power, constitutionally, to authorize a general lowering of rates. Now the constitutional authority has been given, and it is expected and hoped that immediately following the signing of the bill by President Harding, the Interstate Commerce Commission will act without delay. One of the outstanding features of the new book, when issued, is that the traveler will not be required to carry a number of different books, inasmuch as the one form of book will be universally used and accepted.

"According to the amended bill passed by the House, and since ratified by the U. S. Senate, it is optional with the Interstate Commerce Commission to order the issuance of either mileage or scrip books; the latter, if adopted, will be sold containing a number of coupons that will either be exchangeable for transportation at the railroad ticket office or acceptable for transportation on all roads. It is expected that the books will be offered for sale at a substantial discount. Possibly a book containing $100.00 in scrip will be sold for $75.00

"By this process, whether the owner travels over one of the leading trans-continental lines or upon a short line, where there are tunnels or mountainous grades, or other railroad problems, where the rate per mile today is more than 3.6c, the actual percentage of saving will be the same.

"Without the persistent and energetic endeavors of the National Council of Traveling Salesmen's Associations, assisted by other organizations, sales managers and employers of large staffs of traveling men, this favorable legislation might not have been enacted. It is certain that the opposition to it would have postponed action.

"Further important legislative and organization measures will be formulated at a convention to be held by the National Council at Cincinnati on October 9, 10 and 11. It is expected that the greatest and largest gathering of commercial travelers, ever assembled, will be present at that convention at which time they will plan for the future, the best interests of business in general, and the traveler in particular.

$1,000,000 Ground Wood Fire at Port Alfred

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., July 17, 1922.—Over one million dollars' worth of ground wood pulp was destroyed by fire at the plant of the Chicoutimi Pulp Company, Port Alfred, on the Saguenay River, a few days ago. The pulp was the production of a hundred days of full work in the Chicoutimi and Val Jalbert mills, and was stacked in the yards ready for shipping to England. Two steamers, the *Tabor* and the *Tagord*, each of 5,000 tons capacity, were loading at the time of the fire.

The fire was caused by a short circuit through two electric wires, which were brought into contact by the violent wind blowing at the time. Two men employed as loaders, William Brassard and Arthur Simard, tried to change the course of the wires, but the former was electrocuted.

The fire spread so rapidly in the huge piles of pulp that all the fire fighting force had to be concentrated on saving the big shops at Port Alfred and a huge shed containing over another million dollars' worth of sulphite. The shops and sheds were situated only a few hundred feet from the flames.

Fortunately the entire plant was saved. The loss of the pulp will not have a serious effect on the filling of the contracts by the company, except to retard the loading of the steamers for a few days.

Nine hundred tons of pulp are scheduled to arrive from the Chicoutimi and Val Jalbert mills daily, and this will permit of the regular shipments continuing.

The pulp destroyed represented cargo for 18 or 20 steamers of four to five thousand tons each. The pulp was fully covered by insurance.

XUM

Points of Excellence

Made of clean, strong, pure white paper.

Perfectly sterilized. Meet requirements of Pure Food and other existing Laws.

Outside reinforced with pure, fully refined paraffin wax. Strong and rigid.

No wax on inside. Tasteless and odorless.

No glue. Sealed with paraffin under pressure.

Spiral wrapping reinforces cup.

Extra reinforcement at bottom prevents cups sticking together.

Will not absorb moisture or leak when left for an indefinite period.

Conveniently shaped; no holders needed.

Packed in dustproof cardboard tubes; shipped in sealed cartons.

Nested together and dispensed inverted, inside untouched by hands.

Reg. U. S. Pat. Off.
Vortex
DRINKING CUP
(Patented)
June 20, 1916, Reissued June 13, 1922; March 26, 1918; April 18, 1922; Other Patents Pending
Canadian and Other Foreign Patents Granted and Pending
"One who manufactures, who uses, or who sells a device that infringes a patent is equally an infringer."
Look for our trade-mark "VORTEX" on all cartons and tubes

The dispensing tube may be had for attachment to post or wall, or to place on top of cooler. Its simplicity, fine appearance and low cost will please your customers.

It Pays to Push *Vortex*

Vortex Drinking Cups sell easier because they offer every advantage of safety, sanitation and convenience, *plus* a very marked economy.

They are strong, leakless, neat and sanitary. They are absolutely odorless and tasteless. They are dispensed from the simplest container imaginable. Yet they cost less.

You have every advantage of quality and price with the *Vortex* line. The field for profitable paper cup sales is widened immensely by the unequaled advantages of the *Vortex*.

It is a good thing to know, too, that the *Vortex* is *the original, the patented* conical cup. It is known nationally and used nationally. Millions of these cups are sold every day.

Look into the *Vortex* proposition thoroughly. It is worthy of your most careful consideration if you seek easier sales, larger sales and more profitable sales. Write us.

THE VORTEX MFG. CO., 421-431 North Western Avenue, Chicago

Canadian Wm. A. Rogers, Ltd., Toronto, Manufacturers and Distributors for Canada

Reg. U. S. Pat. Off.

Vortex

Drinking Cups

XUM

New York Trade Jottings

Fred. Clark, of the Pejebscot Paper Company was among the New York Trade visitors Thursday of last week.

* * *

Warren B. Bullock, Director of Publicity for the American Paper and Pulp Association, 18 East 41st street, left for Washington on business last Monday night.

* * *

The Hoboken Paper Mill Company has removed its office from Hoboken, N. J., to Room 564, 200 Fifth avenue. The telephone numbers of the new location are Gramercy 1172-1173.

* * *

F. W. Barker, Jr., announces his resignation from the National Aniline and Chemical Company, Inc. Mr. Barker will associate himself with the Kaumagraph Company, with offices at 209 to 219 West 38th street, New York.

* * *

The Mercury Paper Box Company last week leased the store at 80-82 Greene street from Spear & Co., brokers. The Manhattan Paper Company also leased the warehouse at the foot of Baltic street, Brooklyn, from this same concern.

* * *

Charles R. Outterson, formerly chemical engineer of the Carthage Sulphite Pulp and Paper Company, has resigned to complete the organization of a company to be known as the Adirondack Mineral Products Company, with a capitalization of $50,000.

* * *

Samuel G. Esdale, formerly with the J. E. Linde Paper Company, 84 Beekman street, New York City and recently with Alexander-Holden Company, Inc., has become associated with E. W. Scarborough Company, Inc., of 28 Beekman street, dealers in paper and cardboard.

* * *

The Seaplane Envelope Company, Robert L. Gray, president, moved from the 18th to the 17th floor of the Woolworth Building Monday of this week. The offices on the 18th floor had been occupied by the company for the past seven years, its new and larger quarters being the suite 1775-77.

* * *

W. G. MacNaughton, secretary of the Technical Association of the Pulp and Paper Industry, left the offices of the Association, 18 East 41st street, last week for a ten days' vacation trip to Wisconsin. Mr. MacNaughton expects to visit Wausau, Wisconsin Rapids, Port Edwards and Madison, and will return shortly before the first of August.

* * *

A communication from Russell McCandless, vice-president of the Riordon Sales Corporation, Ltd., of 522 Fifth avenue, New York City contains the following news: "Russell McCandless announces to the world in general that he is the proud father of a seven pound boy, and that both the baby and Mrs. McCandless are doing nicely." Congratulations of the PAPER TRADE JOURNAL!

* * *

Hans Lagerloef, president of the Lagerloef Trading Company, 52 Vanderbilt Avenue, sailed for Finland last Saturday on the steamer *Drottningholm*, of the Swedish-American Line. Mr. Lagerloef will make his regular business tour of the Finnish mills, for which his company is the sole representative in the United States. He will spend several months on the other side.

* * *

The News Print Service Bureau, 348 Madison avenue, has recently completed a thoroughgoing treatise on "Cost Accounting for Logging Operations." This book, of approximately 60 pages and accompanied by numerous charts, was prepared by the Bureau's accountant, Mr. Ware, in cooperation with the accountants of a number of the leading pulp and paper manufacturers of the eastern United States and Canada. This publication and personal assistance in applying the recommended methods are part of the service that the bureau renders to its members, but the nominal price of $10 per copy is charged others desiring to secure copies.

* * *

Dr. Hugh P. Baker, Secretary of the American Paper and Pulp Association, now making a tour of Scandinavian mills, sent the following on a card postmarked Mora, Sweden: "Country is very beautiful here in central Sweden and it is needless to tell you that we are having a very enjoyable time. Came here yesterday from Kramfors and will spend three days in an excursion of Foresters of northern Sweden—then two days with Baron Maunerheim—then Norway and Finland. People here have been very fine to us, thanks to letters from you and others." On the opposite side of the card a photograph of the castle of "Skoklosters slott" was accompanied by the notation that the party, accompanied by Geo. W. Sisson, Jr., visited this edifice the first day in Stockholm.

* * *

The Marshall Field, Glore, Ward Company bankers, 38 Wall street, are offering a new issue of $1,250,000 of first mortgage 20-year 6½ per cent sinking fund gold bonds of the Watab Paper Company, Sartell, Minn., at a price of 94½ and interest to yield more than 7 per cent. The bonds are dated July 1, 1922, and mature July 1, 1942. The mortgage provides for a semi-annual sinking fund amounting annually to 2½ per cent of the face value of the total bonds issued. The proceeds of the new bond issue are to be used to retire the present outstanding first mortgage bonds of the Watab Pulp & Paper Company and for other corporate purposes.

Net sales of the company in 1921 amounted to $2,219,178 and net income totaled $186,590. On the basis of 1921 earnings interest charges on the new bond issue were earned more than two and one-quarter times over. The company's balance sheet as of June 1, 1922, after giving effect to the new financing, showed fixed assets of $3,388,237 and current assets of $1,090,320.

Demand Increases in Wisconsin

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., July 18, 1922.—A sudden and unexpected increase in demand for almost all kinds of paper in the last week or ten days is reported by Fox river valley manufacturers. It is believed this spurt is due to a fear on the part of jobbers that railroad transportation will be tied up and they are stocking up for an emergency. Some of the mills have sufficient orders to keep them operating at capacity for a month or six weeks. The demand for book and catalog papers is particularly active.

There has not been an increase in price except in case of rush orders. The market is stiffening, however, and manufacturers predict increases soon.

Thus far the mine and railroad strikes have not affected valley paper mills adversely. Most of the mills have sufficient coal to last them one or two months and they are able to conserve it because of continued high water in the Fox river. Mills were able to use a maximum of waterpower all season, whereas last year at this time they were drawing less than 50 per cent of their normal water supply.

Change in A. G. Stewart Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, July 17, 1922.—Hugo H. Wortmann has dissolved his connection with the partnership and business of A. G. Stewart Paper Company, of 320 N. La Salle street, Chicago.

The business will be continued under the same name, A. G. Stewart Paper Company at the same address, by the remaining partners.

XUM

GROUND WOOD
CHEMICAL PULPS

PERKINS-GOODWIN CO.
NEW YORK

PAPER

ALFRED LEEDS, President
KARL BECKER, Vice President

ERNEST R. COLLINS, Secretary
EDWARD M. MILLER, Treasurer

Becker Paper Corporation

350 Madison Ave., New York, N.Y.

317 Main Street, Springfield, Mass., Branch Office for New England States

Dealers in All Grades of Paper

SPECIALISTS IN

BOOK PAPER, GLASSINE and EMBOSSED GLASSINE PAPERS

Exclusive Distributors for

WESTFIELD RIVER PAPER COMPANY
RUSSELL, MASS.

XUM

WHY THE REFRACTORY IS A FACTOR IN FURNACE LIFE AND CAPACITY

By I. S. Pieters, Engineering Dept., Jointless Fire Brick Co.

In the modern boiler room the furnace imposes the limitation. How soon the limitation is encountered depends upon how carefully the furnace is designed and the wisdom used in the choice of materials comprising it. It is only comparatively recently that the importance of the furnace has been fully appreciated.

It is the furnace that determines the maximum combustion efficiency that can be attained; it decides the economical efficiency that should be maintained. It is the furnace that is usually the first to wear out and so compel a shut down for repairs. It is also the factor that ordinarily determines how "hard" a boiler or a fire can be worked. The more closely boiler room operation is examined the more apparent will it be that the furnace is all-important. A study of conditions shows immediately why this is the case. Further, it explains why of recent years the furnace has come in for the largest amount of attention and the most radical changes.

Perhaps the most prominent tendency during the last few years has been that of operating boilers at higher rates of evaporation. One boiler horsepower is nominally equivalent to 10 sq. ft. of boiler heating surface; when every 10 sq. ft. of heating surface evaporates 34.5 lbs. of water per hour, the output is said to be one boiler horsepower. Actually, however, three to five times this amount of water may be evaporated for every square foot of heating surface. This means that somewhat more than three to five times the amount of coal must be burned in the furnace to evaporate this larger amount of water. By working existing equipment many times harder than the nominal, a given investment is made more useful or the money sunk in new apparatus may be reduced. It pays to work apparatus "hard."

Higher combustion rates necessitates radical changes both in the design of the furnace and the materials that go to make it. Larger furnace volumes are required so that the larger quantity of air and gas may mix with that intimacy so necessary for complete combustion. As ignition is largely a matter of time as well as temperature it has been necessary to increase the length of flame travel as well as the space available for mixing the air and combustible gases. To accomplish this, the height as well as the volume of the furnace has had to be increased.

Because of the larger quantities of coal going into the furnace at these high evaporation rates, the fuel beds are thicker and so offer higher resistance to the flow of air. Higher drafts thus become necessary as well as much larger volumes of air. Mechanical draft is resorted to, therefore, to handle the air and mechanical stokers are used to handle the fuel.

In consequence of these developments the furnace problems that have come about are twofold. They are those due to higher temperatures on the one hand and those due to mechanical considerations—greater height and greater volume—on the other, and they are closely interrelated. Before discussing the problems on account of the higher temperatures and larger furnaces or attempting to explain why they occur or how they may be mitigated and even eliminated altogether for long periods, a thorough understanding of what the furnace walls and interior must accomplish is worth while.

Conditions the Furnace Must Meet

The structure that constitutes the furnace must not only have sufficient strength to support itself at all temperatures that may occur, but it must be capable of supporting whatever loads may be applied to it and whatever stresses may be exerted over the range of temperature that occurs under the most extreme conditions.

Part of the furnace, the inside, must be capable of withstanding for a reasonable length of time the highest temperatures produced in the furnace—namely temperatures between 2,800 and 3,000 deg. F. It must also be capable of standing up under the erosion and attrition of coal, ash and clinker passing along it and adhering to it as well as attack by the fireman's slice bar while he endeavors to break off lumps of clinker and Molten ash. The furnace lining must not be chemically reactive with the ash and clinker or impurities in the coal (which usually have low fluxing temperatures) otherwise the lining will surely flux and melt. It should have a minimum coefficient of expansion and contraction. The material must not be brittle or it will crack on rapid heating; but it must be tough so as not to be susceptible to abuse. It should not be too porous otherwise it will allow air to flow from the outside into the furnace; this cool air, of course, lowers the furnace temperature, wastes heat and fuel, may cause damage to the intensely hot boiler heating surfaces, may overtax an already overloaded stack and hasten the spawling of the refractory in the furnace. The flow of heat from the inside to the outside should be a minimum.

Each of these requirements—refractoriness, phyical strength, surface hardness, low expansion and contraction coefficient over a wide temperature range, low heat conductivity, imperviousness to air—is of vital importance. These characteristics and requirements differ so widely that no one material can meet them all. Therefore, furnace walls and settings are no longer made up of one material as was once the case but three, four or more materials are used. Each serves an entirely different and distinct purpose; and in this way each material can be chosen specifically for the special condition it must meet.

This, in brief, explains why the furnace of brick or even of two different kinds is rapidly disappearing. It is the reason why the modern furnace with the longest life, lowest upkeep cost and highest thermal efficiency working under the extremely severe conditions of today is now invariably composed of three and sometimes four and five different materials.

Typical Furnace Difficulties

Most furnace troubles originate inside the furnace and these, in turn, contribute to, if they do not actually cause those that take place on the outside. Usually the trouble starts at the joints between bricks. Every joint is a weakness and every layer of cement or mortar a possible source of trouble. It is very easy to understand why.

Each brick expands and contracts individually according to its individual characteristics and the temperature to which it is subjected. Bricks differ quite widely among themselves in shape, size and ability to stand up under high temperatures; some shrink more than others and some never reach normal size again after heating. Bricks that are not true to size and shape exert a side thrust against adjacent bricks. Bricks that are too hard are often brittle and crack with sudden temperature changes, on account of internal pressure due to unequal heating or external pressures.

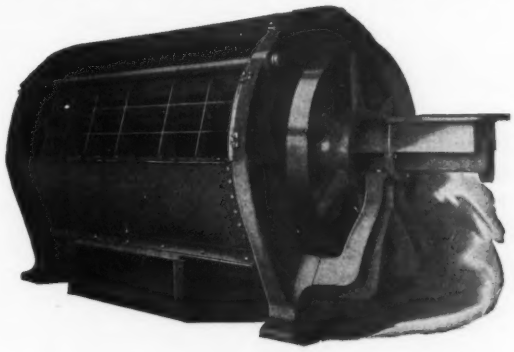
Consequently, the interior surface of the furnace lining when of brick may be smooth and have all bricks flush when first placed into service but it soon assumes a rough and ragged

XUM

"IMPCO" TAILING SCREENER

FOR SCREENING GROUND WOOD TAILINGS

Very Low Power and Upkeep Expense



Delivers Rejections Free from Good Stock

ANOTHER UNIT OF OUR CLOSED SYSTEM FOR PULP SCREENING

WRITE FOR FULL DETAILS *CORRESPONDENCE A PLEASURE*

IMPROVED PAPER MACHINERY CO. **Nashua, N. H.**

SHERBROOKE MACHINERY CO., LIMITED, SHERBROOKE, CANADA

WHALEN SULPHITE PULPS

Made from the SITKA SPRUCE of BRITISH COLUMBIA
Noted for Fibre, Color and Strength

SNOWHITE BLEACHED SULPHITE	**GLACIER EASY BLEACHING SULPHITE**	**SWAN STRONG SULPHITE**

As exclusive Sales Agents for all of the products of the WHALEN PULP & PAPER MILLS, LTD., in addition to stocks at the mills, we will carry large stocks of the above well-known brands in New York, thus insuring prompt deliveries.

Your inquiries addressed to any of our offices will bring prompt quotations by wire.

CANADIAN ROBERT DOLLAR CO., Limited

VANCOUVER, B. C.

U. S. ADDRESSES

Robert Dollar Co., Robert Dollar Bldg., San Francisco.
Robert Dollar Co., 15 Moore Street, New York, N. Y.
Robert Dollar Co., Harris Trust Bldg., Chicago, Ill.
Robert Dollar Co., L. C. Smith Bldg., Seattle, Wash.

FOREIGN OFFICES

Robert Dollar Co., Shanghai, Hong Kong, Hankow, Tientsin, Ichang, Chungking, and Pekin, China; Kobe, Japan; Calcutta, India; Manila, P. I.; Singapore, S. S.

XUM

surface to the fire as the individual bricks work about and some retire and others tend to protrude into the furnace chamber. Those bricks that are most exposed to the intense heat are the first to melt at the corners and edges. As they wear down, other bricks gradually protrude and these too melt so that an endless cycle of deterioration goes on.

The cement used to hold the bricks together is a source of trouble in the majority of furnaces using brick. It is an important factor in determining the strength of a wall as well as the thermal efficiency of the furnace and its life.

The layer of cement must necessarily be very thin—the thinner the better. On cooling after being heated, it usually shrinks and hardens. This weakens the joint of course, and leaves voids where the cement was originally. As the bricks move on expanding and contracting, more cement is forced out from between the joints while some of it melts so that the bricks settle down and many of them become loose while others jam. One commonly finds bricks that can be lifted right out of the wall. It can readily be seen why the brickwork under these conditions is short-lived when the fireman roughly tries to dislodge adhering clinker from loose and crumbling brickwork. As the bricks disintegrate and the joints between bricks loosen up, more and more air tends to enter the furnace from the outside and the greater becomes the waste of heat from excess air.

Troubles with brick furnaces can be reduced, of course, by using only brick that is true to size and shape and that run uniformly as to material. Further, the cement must be chosen so that it does not act as a flux for the brick and that it has as close as possible the same coefficient of expansion and contraction as the bricks it is to hold together. The great difficulty with brick, however, is that bricks in one consignment will vary among themselves. It is difficult to keep sizes uniform; the clay used may come from different locations; the heat treatment may differ so that some of the bricks are more porous, more brittle or of lower strength than others. Bricks in the same consignment may have been collected from different batches that have passed through different ovens so that while nominally the same brick they may have quite different characteristics. There are many opportunities for differences to creep in, and every difference in treatment and manufacture means a possible source of trouble.

At best brickwork is patchwork where not only the brick but the cement that binds them and the men that lay them are variable factors. The periodic heating and cooling to which the bricks are subjected in service soon show the results. As a furnace may require from several hundred to many thousand bricks it is obvious that the opportunity for trouble is very great.

Troubles, frequent repairs, comparatively short life and high upkeep cost are inherent to the brick setting and the only scientific way to overcome them is to employ a one-piece or monolithic furnace lining.

How to Solve the Furnace Problem

Since experience as well as theory show that the joints are the weakest parts of the entire brick lining and also the chief cause of trouble, it can immediately be seen that if the joints can be eliminated an immense advance has been made toward doing away with furnace troubles. The elimination of joints almost entirely is probably the most radical step toward longer furnace life and the extension of furnace limitations that has taken place in a long time. This explains why the one-piece, monolithic or jointless lining is proving such a success, and why it is being used especially where furnace conditions are severe, where shut downs for replacements must be minimized and where high upkeep costs have become so serious as to compel that combative measures be adopted.

With the monolithic lining there are no joints. There are no bricks. The lining is a one-piece lining of the same material that after the first heat assumes a smooth, tough surface. There are no protuding parts to be exposed to the heat, to form the nucleus for the building up of clinker masses or to melt down and cause trouble and expense. There are no joints to cause weakness, to serve as channels for cold air to enter the furnace; no bricks to loosen and fall out; no cement to fuse and disappear and no unequal expansion and contraction.

The one-piece, jointless lining is monolithic, of homogeneous material with one coefficient of expansion. Expansion and contraction occur en masse, without unequal strains and without cracks. There is no chemical action between different substances; it all behaves alike for it is all of the same substance. The lining material is chosen for its ability to withstand heat and furnace conditions. It is a refractory used as a refractory where the requirements are for a refractoy, so that all the toubles that do occur with the brick are absent.

When a one-piece or jointless furnace lining is used, the rest of the furnace may be built up of materials that insulate, that is keep the heat in the furnace, and have the strength to carry whatever load may be applied. Usually the insulating material is placed next to the refractory or heat-resisting material, and then is the outside brick used for its strength as a support and protection for the insulation and refractory. Quite often the outer brick is covered with an impervious paint to exclude air from seeping through the brick. As the jointless furnace lining seals up the whole inside of the furnace, the entry of air through it is further prevented, the increase in combustion efficiency due to this type of lining usually results in an increase of from 1 to 3 per cent in carbon dioxide.

The jointless furnace lining by doing away with all the inherent defects of the brick setting has increased the life of the furnace anywhere up to 500 per cent, reducing the cost of upkeep proportionally. It has enabled boilers to operate for more than a year and sometimes for two years without a shut down for furnace repairs where with brick, a new lining was required several times a year. It has increased combustion efficiency and so lowered the cost of fuel. It has enabled boiler evaporation to be increased economically far beyond the range formerly possible with economy.

In short, the elimination of joints in the furnace by adopting a highly refractory one-piece lining without any joints, has permitted big economies to be brought about and at the same time has extended the limitations of the furnace enormously.

Bert Forsyth Goes Into Business in Chicago

[FROM OUR REGULAR CORRESPONDENT]

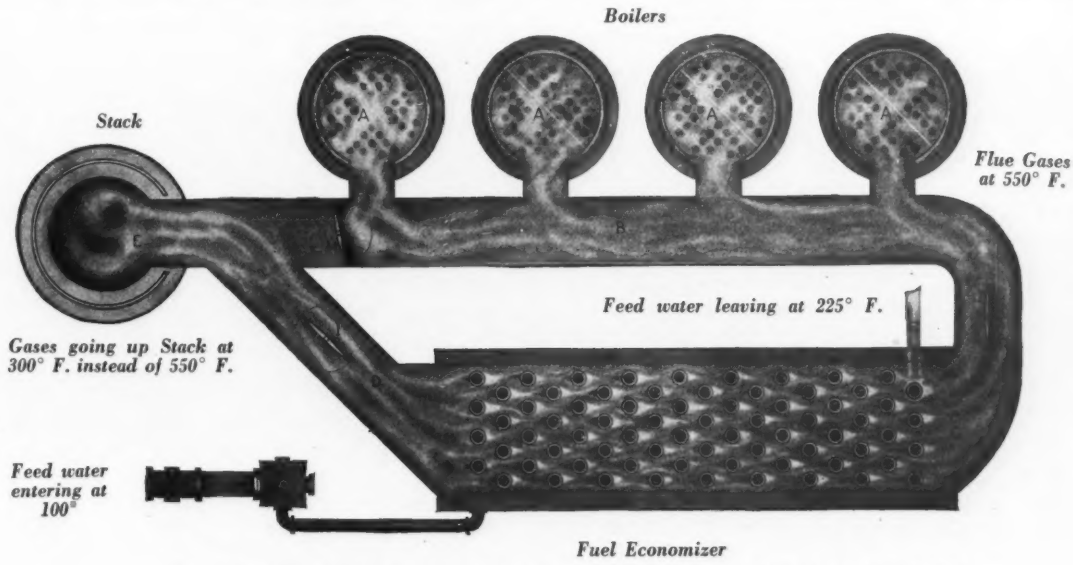
CHICAGO, Ill., July 17, 1922.—Bert Forsyth formerly with the Howard Paper Company, has gone into business with his brother, J. J. Forsyth, under the style of the Forsyth Paper Company. They have established offices at 906-10 South La Salle street as mill representatives. J. J. Forsyth is making a trip for the new firm through Minneapolis and St. Paul.

Ground Pulp More Active

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., July 17, 1922.—A feature of the market here is that orders have begun to come in more freely for groundwood pulp, but prices are still too low to be satisfactory. A strong demand for news print still continues, and all the mills are working to capacity. The demand for book papers and wrappings is rather better.

XUM


Boilers
Stack
Flue Gases at 550° F.
Feed water leaving at 225° F.
Gases going up Stack at 300° F. instead of 550° F.
Feed water entering at 100°
Fuel Economizer

Note that the flue gases have been reduced 250° and that this heat has been absorbed by the feed water in the Economizer, raising the temperature of the water to 225°. This heat is usually wasted up the stack.

Don't Throw Your Money Up The Stack

Put in a Sturtevant Fuel Economizer and save all those valuable heat units that are now going to waste up the stack. One-fifth of the heat units is usually wasted in this manner.

A Fuel Economizer is a system of cast iron pipes containing the feed water around which the hot flue gases are conducted, after passing through the boilers, before escaping into the stack.

With an Economizer, water, before it enters the boilers, is heated almost to the boiling point, thus saving from 10 to 20 per cent of the fuel. In addition, the life of the boiler is lengthened because it is not subjected to sudden expansion and contraction. Further the feed water is purified in the Economizer, lessening scale. It provides a heat reservoir in which large quantities of hot water are stored for use in your plant.

In the Sturtevant Fuel Economizer, the pipes are accurately machined and tapered, fitting tightly into the top and bottom connecting chambers by metal to metal contact; no gaskets or packing of any kind is necessary; and the greater the pressure, the tighter the fit.

Our engineers will be glad to call and go over your plant with you and advise as to the type of money-saving Economizer you should install. These engineers are at your service without obligation.

Sturtevant
(REG·U·S·PAT·OFF·)

Hyde Park, Boston, Mass.

661

XUM

Big Virgin Forests of Sitka Spruce

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., July 17, 1922.—Although Sitka spruce may never again be so eagerly sought and so extensively cut as during the war, it has so many superior qualities in the opinion of foresters and lumbermen that it will always play an important part in the lumber industry of the Pacific coast region. It grows rapidly, makes a large yield to the acre, lends itself fairly well to forest management, and produces a wood which has high value for many special purposes, prominent among which is the manufacture of paper.

The greater part of the virgin forests in which Sitka spruce occurs has not been reached by lumbering operations, according to Department Bulletin 1060, Sitka Spruce: Its Uses, Growth, and Management, a new publication of the United States Department of Agriculture, prepared by N. Leroy Cary, forest examiner. Until recently the cut was relatively small. Sitka spruce was not well known in the world or national markets until an extraordinary demand for it arose during the war because of its superiority for airplane construction.

The total stand of Sitka spruce in America is estimated at 40 to 44 billion feet. More than one-third occurs in Alaska, one-third in British Columbia, and the remainder in Washington, Oregon, and California. It does not ordinarily grow in pure stands, but must be logged in conjunction with other timbers—with Douglas fir, western hemlock, and western red cedar in Washington and Oregon, and with western hemlock in Alaska.

Sitka spruce forms only 1.5 per cent by volume of the total merchantable stand of timber west of the Cascades in Oregon and Washington. In British Columbia it comprises 6.7 per cent of the timber along the coast. Of the coastal forests of southeastern Alaska it forms about 15 per cent. Approximately 50 per cent of the entire stand of Sitka spruce is in private ownership.

In Washington and Oregon, the cut of spruce increased more than 50 per cent in 1918, practically all this was Sitka spruce. The cut in the United States increased very little, and in general is declining. For a number of years Maine was the leading spruce-producing State, cutting chiefly red spruce; but the pressing need for spruce aircraft lumber for war uses stimulated production in the Pacific Northwest to such an extent that in 1918 Washington took first place with a cut of more than 275,000,000 board feet. Oregon was second with a cut of more than 215,000,000 while Maine dropped to third place.

The varied qualities of Sitka spruce fit it for a wide variety of uses. It is the premier wood for the manufacture of aircraft. It is unsurpassed for pulp and is especially adapted for musical instruments. It is also a desirable wood for boxes, crates, barrels, veneer, and woodenware.

To File Claims for Water Damage in Wisconsin

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., July 17, 1922.—Claims totaling nearly a million dollars will be filed by riparian owners along the Fox and Wolf rivers against the United States Government and possibly against Fox river power users for destruction of property by high-water last spring. This was developed at a hearing in Oshkosh last week before United States engineers on a protest against restoration of flashboards on the dam at Neenah. The hearing also developed that the flashboards already have been restored and riparian owners now are trying to find a means to have them removed. The flashboards assist in maintaining a higher level in Lake Winnebago, reservoir for the Fox river, so water will be available during the dry season for power and for navigation. Riparian owners contend the level in the lake is so high, especially in time of high-water in the spring, that thousands of acres of land are inundated.

The hearing was largely attended and at times the discussion was acrimonious. Announcement that flashboards had been restored was a shock to riparian owners and there were many expressions of indignation. It was hinted that an effort will be made to change the personnel of the government engineers' office in Wisconsin in order to obtain more consideration for riparian owners. Power users contend that if water is let out of the lake more rapidly than has been customary the government works in the lower Fox river will be destroyed, causing an enormous loss.

The Acting Chief of the Paper Division

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D.C., July 10, 1922.—Constant Southworth, who is acting chief of the Paper Division of the Department of Commerce, has been assistant chief since the organization of the Division.

CONSTANT SOUTHWORTH

Before that time he was engaged in the Research Division of the Department. Before going to the Department of Commerce Mr. Southworth was connected with the Tariff Commission where he was engaged in preparing the paper surveys which were issued by the Tariff Commission for the Ways and Means Committee of the House for the pending tariff bill.

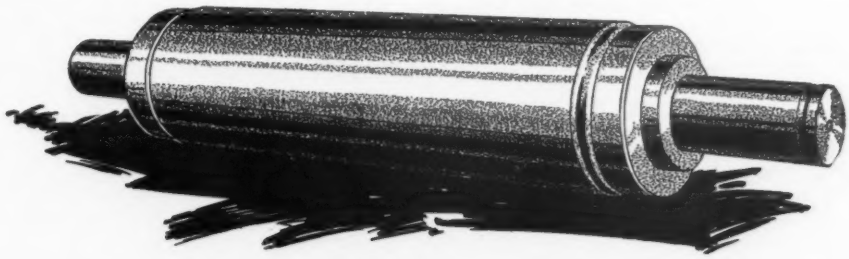
British South Africa Imports Less Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 12, 1922.—In January, 1922, British South Africa imported much less paper than in the same month of 1921. The importation of paper into South Africa in January, 1922, amounted to 1,115 long tons of printing paper valued at 37,343 pounds; 284 long tons of wrapping paper valued at 10.504 pounds, and an unspecified tonnage of other kinds of paper, including paper bags but not stationery, at a value of 17,107 pounds. The importation in January, 1921, amounted to 1,804 long tons of printing paper valued at 143,499 pounds; 721 long tons of wrapping paper valued at 54,427 pounds, and an unspecified tonnage of other kinds of paper, including paper bags, but not stationery, with a value of 32,303 pounds.

Northwest Paper Co. Increases Stock

ST. PAUL, Minn., July 17, 1922.—The Northwest Paper Company of Cloquet, Minn., increased its capital stock from $1,000,000 to $2,500,000 in amended articles of incorporation filed last week.



SUPER CALENDER ROLLS

The final touch is given your paper stock by the Calender Rolls. For half a century our rolls have been putting that finishing touch upon papers that have an acknowledged superiority.

THE APPLETON MACHINE COMPANY

APPLETON WISCONSIN

"AMERICAN"

PAPER MAKERS TWINE TUBE ROPE
WALL PAPER TWINE HAY ROPE
FINE AND COARSE POLISHED TWINES
"AMERICAN" BRAND MANILA ROPE
"AMERICAN" BRAND TRANSMISSION ROPE

The name "AMERICAN" as applied to cordage means "more value in every way." Send for copy of our General Catalogue, Prices and samples. Address Department M.

Largest Makers of Commercial Twines and Rope in the World

AMERICAN MANUFACTURING CO.
NOBLE AND WEST STREETS, BROOKLYN, NEW YORK CITY

CORDAGE

Editorial

Vol. LXXV New York, July 20, 1922 No. 3
FIFTY-FIRST YEAR

Foreign Paper Trade

The figures on the exports of paper, which have just been issued for the month of May by the Department of Commerce at Washington and which are the latest available, show that the foreign paper business has just about been holding its own. The figures, which amounted to $2.167,536 for the month are extremely small, when the monthly average of a year or two are considered but are encouraging when it is recollected how the figures have been decreasing for many months past. It is to be hoped that this steady decrease in the figures has now been definitely checked and that the paper export business will soon again increase to old time proportions. The figures for April amounted to $2,164,860 and the figures for May a year ago were $1,856,160. The figures for the eleven months ending with May were $18,544,663 as compared with $55,-036,057 for the same period last year.

The exports of news print for May, however, continued to show a decline, the figures being only $225,456 as compared with $308,-928 for April and $234,056 for May of last year. The exports of news print for the eleven months ending with May amounted to $1,783,590 as compared with $4,541,189 for the same period last year.

The exports of cover paper for May amounted to $16,676 as compared with $16,375 for April; of grease-proof and water-proof paper $15,453 as compared with $10,808 for April; of wrapping paper $189,030 as compared with $203,124 for April, of writing paper except papeteries $92,795 as compared with $121,045 for April; of surface coated paper $50,004 as compared with $44,575 for April; of tissue and crepe paper, $50,884 as compared with $46,997 for April; of toilet paper $66,456 as compared with $38,553 for April; of bristols and bristol board $22,509 as compared with $29,316 for April; of paper board and strawboard $208,879 as compared with $158,869 for April and of paper bags $80,283 as compared with $101,507 for April.

The imports of paper for May showed a good increase over April, the figures for the former months being $7,158,402 and for the latter only $6,498,575. The imports of paper for May a year ago amounted to $6,106,953 and the imports for the eleven months ending with May were $77,776,674 as compared with $92,588,745 for the same period last year.

The imports of news print especially showed a big increase, the figures for May being $5,649,320 as compared with $5,285,534 for April and $4,866,318 for May of last year. The imports of news print for the eleven months ending with May were valued at $65,-493,042 as compared with $76,913,439 for the same period last year.

The imports of paper stock for May were valued at $195,208 as compared with $285,722 for April and $102,203 for May of last year. The imports of paper stock for the eleven months ending with May were valued at $2,708,460 as compared with $5,494,796 for the same period last year.

The imports of rags for paper making purposes for May were valued at $284,912 as compared with $228,289 for April and $162,-183 for May of each year. The imports of rags for paper making purposes for the eleven months ending with May were valued at $2,761,991 as compared with $5,020,071 for the same period last year.

The imports of ground wood for May were valued at $278,868 as compared with $318,861 for April and $215,558 for May of last year. The imports of ground wood for for the eleven months ending with May were valued at $5,083,491 as compared with $11,-924,911 for the corresponding period of last year.

The imports of unbleached sulphate for May were valued at $855,531 as compared with $948,944 for April and $590,418 for May of last year. The imports of unbleached sulphate for the eleven months ending with May were valued at $12,010,252 as compared with $14,471,792 for the same period last year.

The imports of unbleached sulphite for May were $979,747 as compared with $1,418,783 for April and $422,093 for May of last year. The imports of unbleached sulphite for the eleven months ending with May amounted to $16,134,058 as compared with $29,-661,878 for the same period last year.

There were no imports of bleached sulphate for May of this year or last year. The imports for April, however, were valued at $36,870 and for the eleven months ending with May were valued at $348,613 as compared with $1,178,657 for the same period last year.

The imports of bleached sulphite for May were valued at $1,198,-360 as compared with $1,438,707 for April and $434,952 for May of last year. The imports of bleached sulphite for the eleven months ending with May amounted to $11,456,776 as compared with $15,484,894 for the same period last year.

A Time for Caution

Caution against such increases in prices for paper as would retard the return of real prosperity in the fall is advised in the monthly review of the paper industry by the American Paper and Pulp Association.

"The outstanding feature of the paper market," says the association, "is that while there has been the falling off of orders which was to be expected during July and August, the drop has not been as severe as has been the case in many typical years. In other words, these months are as one authority has phrased it, a breathing space during which further strength will be gathered for bigger business in the fall.

"Present stocks are inadequate to fill the demand that is certain to appear this fall, and there is every reason to anticipate a period of greater general business activity in volume than has been seen for some years. The general business situation indicates that the prospective demand will have real purchasing power back of it. In the face of this condition, many careful buyers are placing their orders during the summer, to avoid the chance of concentration at a time when the large volume of business is to be expected."

Various authorities are quoted, however, as fearing that there are symptoms of a too rapid resumption after the business depression, which might defer the sound and substantial basis which will be better for all lines of industry.

XUM

The Early Manufacture of Sulphite Pulp

BROOKLYN, N. Y., July 10, 1922.

Editor, PAPER TRADE JOURNAL:

Having observed Arthur D. Little's letter of June 7 in your issue of June 22 as to the first mill in this country that made sulphite pulp, permit me to say that Mr. Little is perfectly correct in his statement.

Kindly give me a little space for reminiscences of some of the things long past in paper manufacture. Charles S. Wheelwright, a brother of George W. Wheelwright, Sr., of Boston, learned paper making in his father's mill at Fitchburg, Mass. It was there that I had the pleasure of seeing him. He later became a salesman, subsequently became acquainted with Mr. Richmond and, in time, married his daughter.

Mr. Richmond and C. S. Wheelwright started a paper mill at the bridge at Pawtucket, R. I., which they operated for a few years. They then erected the "Big Mill" at East Providence, R. I., and it was at that mill that the first sulphite pump was made in this country. The superintendent was James Marshall, brother of Geo. E. Marshall, who was the originator of fast running machines that revolutionized the paper industry. The late John G. Luke, past president of the West Virginia Pulp and Paper Company, succeeded him, and he was the first one who made saleable sulphite pulp, and to him and Chas. S. Wheelwright should credit be given.

C. S. Wheelwright was of a sunny disposition; courteous, and a "good looker." In point of fact, he was an Adonis—but one who was perfectly democratic in his intercourse with men. I believe that he has one or two sons living in Providence, R. I., or they were a few years ago.

Here are one or two items for old timers to solve: Where was the first straw news made? Some say it was made by Thos. C. Bradbury at Manchester, N. Y., a little south of Poughkeepsie. Some say at Chauncey Kilmer's mill at Rock City Falls; then others say at S. Park's mill at Glen Falls, N. Y., and still others at the mill of Miller and Churchill, Herkimer, N. Y.

Why did the *New York Sun* call Warner Miller "Wood Pulp Miller"? One more query: What was the first mill that used "Ground Wood Pulp"? It was made at Curtisville, Southbridge, Mass., near Lee.

Thanking you for your courtesy, I remain

Yours very truly,

DAVID M. DRURY.

[NOTE—The first wood pulp to be made into paper was manufactured by A. Pagenstecher at Curtisville in the town of Stockbridge, Mass., and was sold March 16, 1867, to Hon. Wellington Smith and used at the plant of the Smith Paper Company, Lee, Mass. It was sold at 8 cents per pound. Hon. Warner Miller, who early joined the Pagenstechers in the manufacture of ground wood at about the same time was beginning his political career, which included service in the House of Representatives and the Senate where his business connection naturally led him to champion measures favorable to ground wood and caused him to be referred to in the press as "Wood Pulp Miller."—EDITOR.]

Secretary Beck Replies to Mr. McBain

MONTREAL, July 17, 1922.

Editor, PAPER TRADE JOURNAL:

It is interesting to note in B. T. McBain's rejoiner to my letter of June 17, that his advocacy of a tariff on pulp and paper from Canada is based upon his understanding of Canada's so-called pulpwood policy, rather than upon the supposed undue advantages in power and labor conditions possessed by Canadian mills in comparison with American. "Existing American mills cannot hope to compete with their Canadian neighbors with an even break and unless Canada opens up and allows its pulpwood to be exported to American pulp and paper mills, built before this closed door policy was adopted by Canada, America should protect the American paper mill industry," he declares.

Once again it is necessary to point out that your correspondent's statement stops short of telling the whole story. Canada, as a matter of fact, has not adopted a "closed door" policy in respect to the exportation of pulpwood, although a great many people in the United States, including, apparently, Mr. McBain, have been led to believe to the contrary. Proof of this is found in the fact that for many years past Canada has exported to the United States an average of more than a million cords of pulpwood a year, and is today exporting as large a quantity of such wood as has been exported since records began to be kept. Here are the official figures:

*Year**	*Cords*	*Value*
1913	1,035,000	$6,805,945
1914	972,508	7,388,770
1915	949,714	6,817,311
1916	1,068,207	5,743,847
1917	1,017,848	6,448,198
1918	1,325,565	8,339,278
1919	1,597,042	15,386,600
1920	838,732	8,454,803
1921	1,615,467	21,513,594
1922	825,967	9,879,150

*Canadian fiscal year, ending March 31.

It is true that some of the provinces have adopted and do maintain restrictions, (for the purpose of conserving their forest resources and of encouraging home industry), which do require that pulpwood cut from Crown lands, which comprise merely a part of their resources, shall go through at least one process of manufacture before being exported. This, however, by no means constitutes a "closed door" policy, as the figures given above abundantly prove.

If it is desired by American paper mills that access to Canadian pulpwood should be maintained as at present, or that such access should be extended, may it be permitted to one on the ground and who is not unfriendly to the American paper manufacturers, to suggest that the way to go about it is not that indicated in your correspondent's letter. "Retaliation" is, at best, a questionable policy and was never yet known to breed anything but ill-returns.

EDWARD BECK, *Secretary.*

CANADIAN PULP AND PAPER ASSOCIATION

Employment Service of the Engineering Societies

The Four National Engineering Societies, the offices of which are at 29 West 39th street, New York, probably maintains the best free employment bureau connected with any industry or profession in the United States. Members of many affiliated societies and organizations are available through this service bureau, so that it is in fact a National clearing house for engineering talent of all kinds.

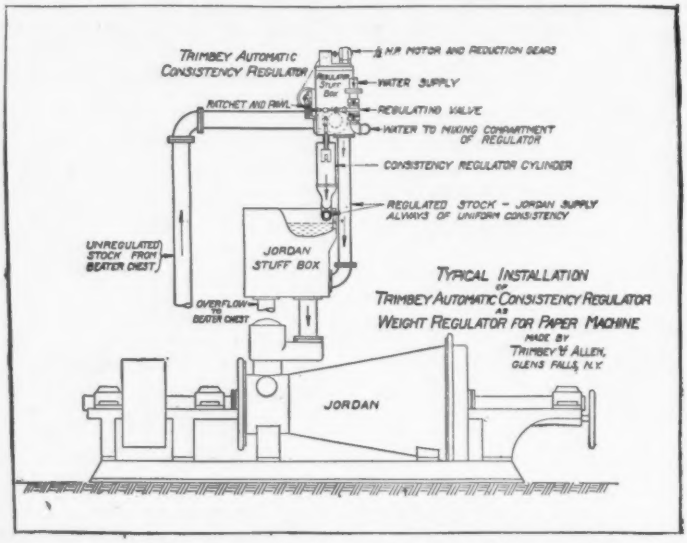
The bureau has advised THE PAPER TRADE JOURNAL that any of its readers who are officials of or connected with organizations in which a central personnel department is not maintained, are at this time given a cordial invitation to make free use of the bureau by advising the various departments in their organizations of the existance and usefulness of the Engineering Societies Employment Service.

The bureau is in a position to furnish Mechanical and Electrical Engineers, Office Executives and Managers, Superintendents, Salesmen, and Purchasing Agents.

The administration of the bureau is in charge of W. V. Brown, manager, Employment Service, Engineering Societies Building, 29 West 39th street, New York City, who represents the American Society of Mechanical Engineers, the American Society of Civil Engineers, the American Institute of Mining Engineers, and the American Institute of Electrical Engineers.

XUM

UNIFORM STOCK


TRIMBEY AUTOMATIC CONSISTENCY REGULATOR
½ H.P. MOTOR AND REDUCTION GEARS
REGULATOR STUFF BOX
WATER SUPPLY
RATCHET AND PAWL
REGULATING VALVE
WATER TO MIXING COMPARTMENT OF REGULATOR
CONSISTENCY REGULATOR CYLINDER
REGULATED STOCK - JORDAN SUPPLY ALWAYS OF UNIFORM CONSISTENCY
UNREGULATED STOCK FROM BEATER CHEST
JORDAN STUFF BOX
OVERFLOW TO BEATER CHEST
TYPICAL INSTALLATION OF TRIMBEY AUTOMATIC CONSISTENCY REGULATOR AS WEIGHT REGULATOR FOR PAPER MACHINE
MADE BY TRIMBEY & ALLEN, GLENS FALLS, N.Y.
JORDAN

This is the machine that will regulate your paper stock to a uniform consistency, thus insuring UNIFORM BRUSHING ACTION at the Jordan. Given stock of uniform character and consistency going on to the wire you will get UNIFORM WEIGHTS and UNIFORM RUNNING CONDITIONS.

This regulator will also cause to be delivered at Beaters, Mixers or Bleachers, stock of a set, uniform consistency.

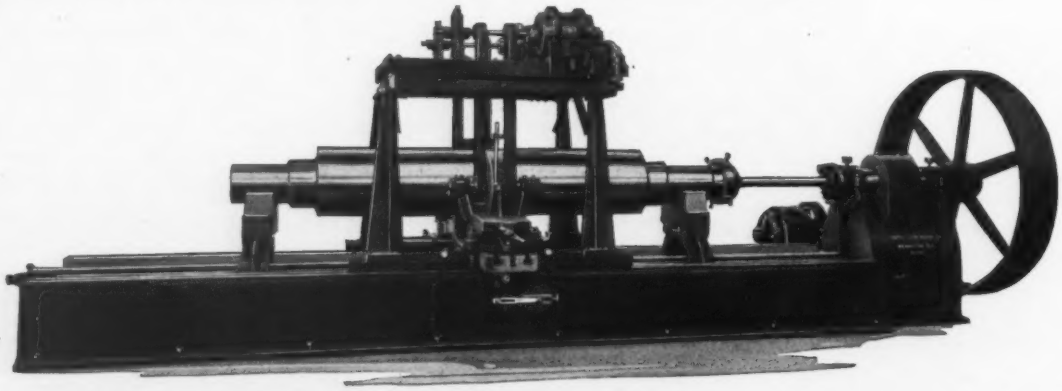
See our exhibit. Booth 515, 8th Exposition of Chemical Industries, Grand Central Palace, Sept. 11-16.

TRIMBEY MACHINE WORKS **Glens Falls, N. Y.**

M. G. TIBBITTS, *Sales Manager*

LOBDELL

ROLL GRINDERS are the only machines of the kind fitted with automatic crowning device which develops a perfect crown without the use of a guide or former and repeated trying for the correct setting.



LOBDELL Calenders are equipped with Patent Electric Motor, Hydraulic or Ratchet Lift all operated from the floor.

LOBDELL Micrometer Calipers are handy and accurate.

LOBDELL CAR WHEEL CO. Est. 1836 **Wilmington, Del. U. S. A.**

Section of the

Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Conducted by W.G. MacNAUGHTON, Secretary

PAPER TESTING METHODS

Microscopical, Chemical, and Physical Processes Described with an Account of the Apparatus Employed

By Committee on Paper Testing, Technical Association of the Pulp and Paper Industry

(Continued From Last Week)

3. Area of Sample

For convenience use a straight edge graduated into inches and tenths and read to hundredths of an inch. Calculate area in square inches.

4. Weight of Sample

The sheet-weighing device that indicates the equivalent weight in pounds in terms of a 500-sheet ream, is most suitable for laboratory or mill use.

In weighing very small samples, it is not desirable to use a weighing device graduated in terms of a 500-sheet ream. For such cases a chemical balance should be used and the weight in grams multiplied by 1.102, will give the equivalent weight of 500 sheets of the size weighed.

Formula for sample weight on sheet paper scales:

$$\frac{\text{(wt. in lb.)} \times (1{,}000)}{\text{Area of sheet in square inches.}} = \text{weight } 25 \times 40{,}500.$$

$$\frac{\text{(wt. in lb.)} \times \text{(Area of trade size desired)}}{\text{Area of sheet in square inches}} = \text{wt. on trade size desired.}$$

It is obvious that the samples being weighed must be accurately measured to determine their size, and this is done by means of an accurate rule, graduated in tenths of an inch. The following formula is of assistance, where a is scale reading, b is one dimension of the sample, c is the dimension at right angles to b, and d is the number of sheets of paper in the sample:

$$\frac{a \times 1{,}000}{b \times c \times d} = \text{weight in pounds per ream } 25 \times 40,\ 500.$$

For samples of paper weighing less than 20 on the quadrant scale a chemical balance is used. For convenience, the following formula is used:

$$\frac{\text{(Weight in grams)} \times (1.102) \times (1{,}000)}{\text{(Area of samples in square inches)} \times \text{(number of sheets)}} =$$

Weight in pounds per ream $25 \times 40,\ 500$.

To convert the weight of the standard ream to the weight of a ream of the desired trade size, it is only necessary to multiply the weight of the former by the area of the latter and divide by 1,000, provided, of course, that the latter ream contains 500 sheets.

a. Balances and Scales. There are a number of available as illustrated. They may be calibrated by placing small accurate weights in the pan and taking readings on the scale. An average of several readings at uniform distances apart on the scale should be obtained.

b. Conversion Factors. The weight of a ream folio size, 17″×22″, 500, can be stated as the substance number.

A method for determining the substance number on small samples by the analytical balance is as follows: A flat piece of thin metal cut exactly 2″×2-1/16″ is held upon the sample and a sharp instrument run around the edge of the metal. The sample cut exactly 2″×2-1/16″ has a substance number equal to its weight in centigrams.

$$\frac{\text{Weight in centigrams} \times 500 \text{ sheets} \times .374 \text{ sq. in. per sheet}}{45{,}360 \text{ centigrams per pound} \times 4.125 \text{ sq. in. in sample}} = \text{substance number.}$$

$$\frac{\text{Weight in centigrams} \times 187000}{187110} = \text{substance number.}$$

TYPICAL EQUIVALENT WEIGHTS IN STANDARD AND TRADE SIZES*

Weight of ream, 25 × 40, 500 Pounds	Trade size ream, 500 sheets Inches	Area of sheet Inches	Weight of ream, trade size Pounds
52.6	25 × 38	950.0	50
64.2	17 × 22	374.0	24
100.0	20 × 25	500.0	50
156.0	22.5 × 28.5	641.3	100

Conversion between ream basis weight and grams per square meter.

Weight in grams per square meter =

$$\frac{\text{(Weight in pounds of any ream, 500 sheets)} \times 1406.13}{\text{Area of sheet in sq. in.}}$$

Weight in pounds per ream of 500 sheets =

$$\frac{\text{(Weight in grams per square meter)} \times \text{Area of sheet in sq. in.)}}{1406.13}$$

To convert to pounds	Ream size	To convert to grams
0.267	17 x 22 500	3.75
0.714	25 x 40 500	1.40
0.429	20 x 30 ...	2.33
0.591	24 x 36 480	1.69
0.675	25 x 38 500	1.48
0.618	24 x 36 500	1.62

Length of paper in a roll.

XUM

$$\text{Length in feet} = \frac{\text{Roll weight}}{\text{Ream weight} \times \text{roll width}} \times \frac{\text{Ream area (sq. in).}}{12}$$

Ream size	Factor
17 x 22 500	15583
25 x 38 500	39583
25 x 40 500	41667
20 x 26 500	21667
20 x 30 480	24000
24 x 36 480	34500

5. Bursting Strength

a. Description—There are two types of testers available for determining the bursting strength of paper and board. One is of the hydraulic type in which the paper is clamped against a rubber diaphragm, through which the pressure is applied to a circular area of the paper measuring approximately one square inch. The pressure is indicated on a special Bourdon tube gage. The second type is of the spring operated metal plunger design in which the paper is clamped betweeen annular rings, through which a spring operated plunger is forced.

b. Comparison—Although a large amount of data have been collected by individual laboratories with the instruments shown in the accompanying photographs, very little information has been published. Certain conclusions, however, may be assumed and certain recommendations made. There is very little, if any, relation between the data obtained with these three testers. With averages of equal number of tests, the variation seems to be inversely proportional to the diameter of contact. There is no standard method of manipulation to assist various laboratories in duplicating results. There is no fundamental unit to which the testers may be referred for calibration. In addition to this, little attention is given to the care of these testers and in the case of the Mullen tester, the deterioration of the diaphragm is often neglected, as well as calibration of the gage. It is recommended that a definite method of making these tests be determined upon and precaution given for the care of the testers. In any case, the bursting strength of a sample as reported should be the average of not less than ten individual tests.

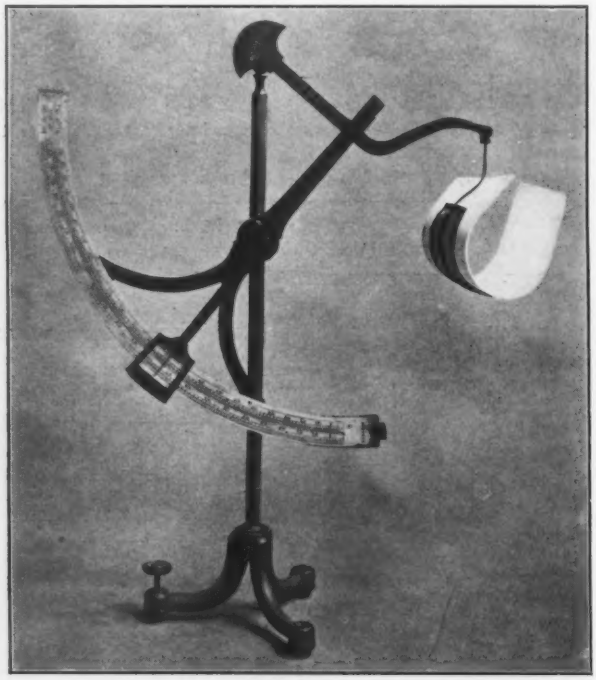


PLATE NO. 18 QUADRANT SCALE
A typical scale for weighing paper. (Foreign Paper Mills Inc., New York City).

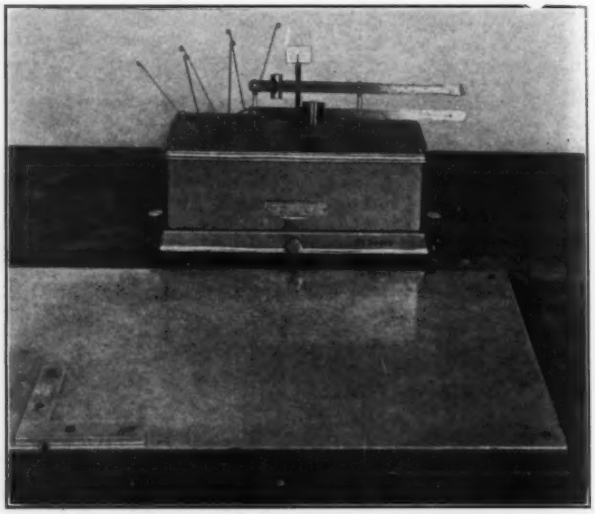


PLATE NO. 19 TORSION BALANCE
A balance designed on the torsion principle, and with scale calibrated in pounds per ream. (Torsion Balance Co., New York City).

c. Ratio—The bursting strength test to be of greatest use must be expressed in terms of the weight of the sample. This ratio of

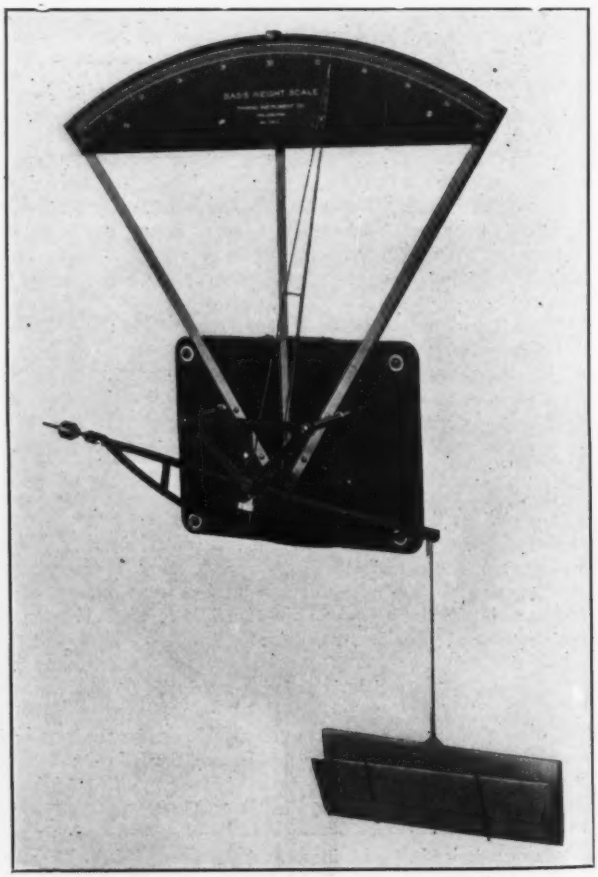


PLATE NO. 20 SHEET WEIGHING DEVICE
An accurately made delicate balance for weighing paper. (Thwing Instrument Co., Philadelphia, Pa.)

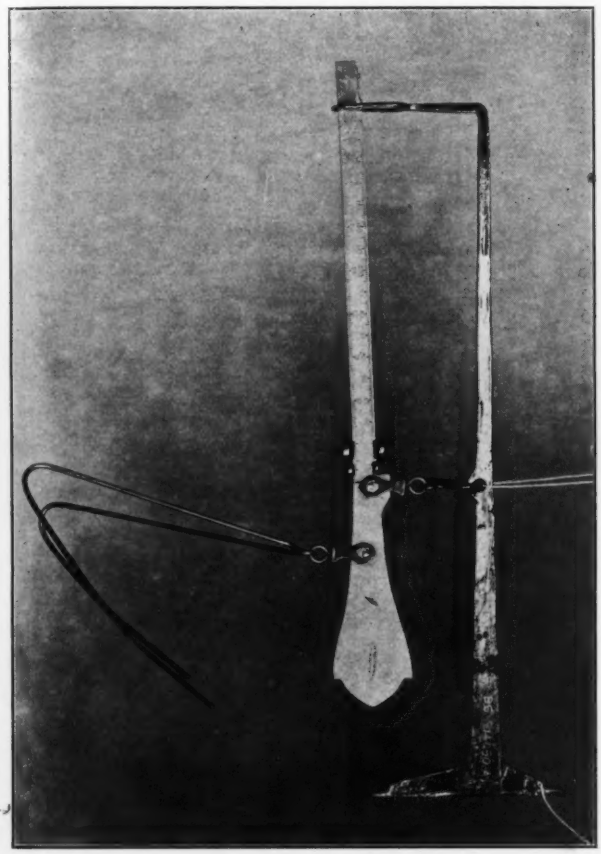


PLATE NO. 21 PEA AND BEAM SCALE
A typical scale for rough work for use in the machine room. (Fairbanks & Co., New York City).

strength to weight may then be directly compared with the strength ratio of any other paper.

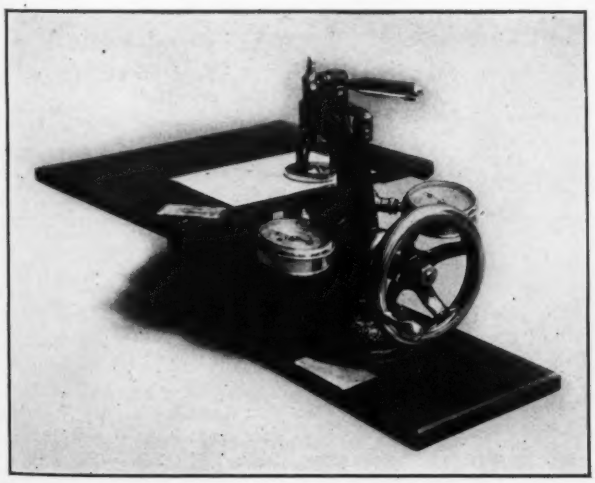


PLATE NO. 22 MULLEN BURSTING TESTER *(89)
A hydraulically operated bursting tester in which the pressure is applied to the paper through a rubber diaphragm and indicated on a gage. (B. F. Perkins & Sons, Holyoke, Mass.)

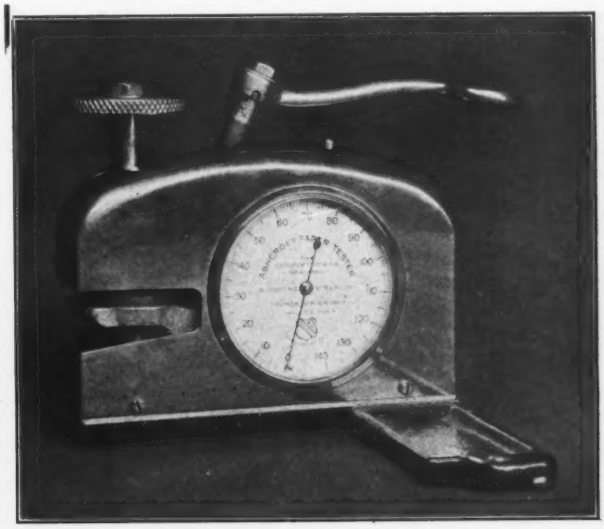


PLATE NO. 23 ASHCROFT TESTER
A spring operated metal plunger bursting tester. (Ashcroft Manufacturing Co., New York City).

The strength ratio may be expressed as a percentage.

$$\text{Strength ratio} = \frac{\text{Bursting Strength} \times 100}{\text{Weight in pounds (on a size 25x40, 500)}}$$

6. Thickness

a. Description—The thickness of a paper may best be determined by the use of a spring micrometer having a hand that travels

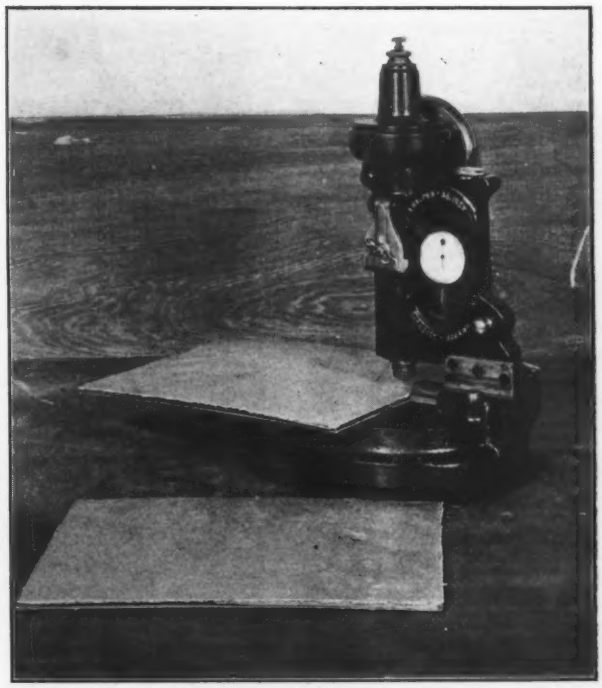


PLATE NO. 24 WEBB TESTER
A device developed for testing corrugated and solid fiber container board. It is of the spring operated metal plunger design. (Container Club, Chicago.)

XUM

around a circular dial. This dial is graduated into thousandths of an inch. This direct reading type of thickness gage should not be read closer than half of a thousandth, as they are not accurate beyond that point. The following is a list of manufacturers of this type of thickness gage: B. C. Ames Co., Waltham, Mass.; B. F. Perkins & Son, Inc., Holyoke, Mass.; Storrs & Bement Co., 140 Federal Street, Boston, Mass.; The Ashcroft Mfg. Co., 85 Liberty Street, New York; Cornelius Kahlen, 349 Broadway, New York; E. J. Cady & Co., Chicago, Ill.

It is advisable to have all thickness gages calibrated before use. This may best be done by securing a set of standard sheet metal leaf gages, which range from 0.001 to 0.015 inch. This range of leaf gages covers the ordinary range needed in testing most papers, and should be used periodically to see that the instrument for measuring thickness remains accurate.

For the purpose of obtaining a quick comparison of the relative compactness of several papers, the following formula is suggested:

$$\frac{\text{Thickness in thousandths of an inch}}{\text{(Weight 25x40, 500)}} \times 10{,}000 = \text{Relative compactness.}$$

The factor 10,000 serves to give a resultant figure more rapidly remembered. A very highly compressed paper may show a relative compactness of 0.600, while a very spongy or fluffy sheet may bulk to 1.300. This last sheet is more than twice as bulky as the former mentioned.

b. Variations—A superficial inspection of the different types of micrometer gages available for determining the thickness of paper, indicates that there is little or no uniformity in their construction. It is found that there are considerable differences in spring pressure, in size and shape of the contact areas and in the size of the dial divisions. It would seem that these differences would affect the accuracy of the test when different gages are used and it is, therefore, emphasized that the test is not accurate closer than one-half of a thousandth of an inch.

7. Bulk

The bulk of a paper is the thickness of a certain number of pages and applies more particularly to book papers where the printer desires a book of a certain number of pages to bulk one inch. The bulk of a paper is measured by cutting out short strips of paper, piling them up to the required number and measuring the combined height of the pack. This measurement may be made by the use of a Perkins bulk tester. This instrument measures the bulk in inches, also the pressure of clamping, and takes the place of the ordinary graduated sliding clamp which is in common use.

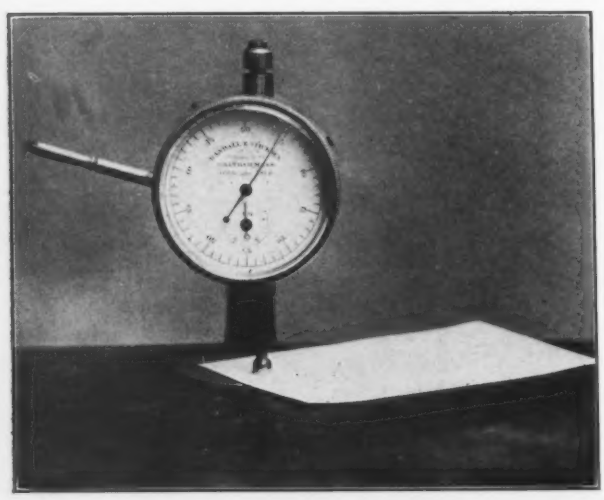


PLATE NO. 25 THICKNESS TESTER *(89)

A typical micrometer gage for testing the thickness of Paper. (A. Storrs & Bement Co., Boston, Mass.)

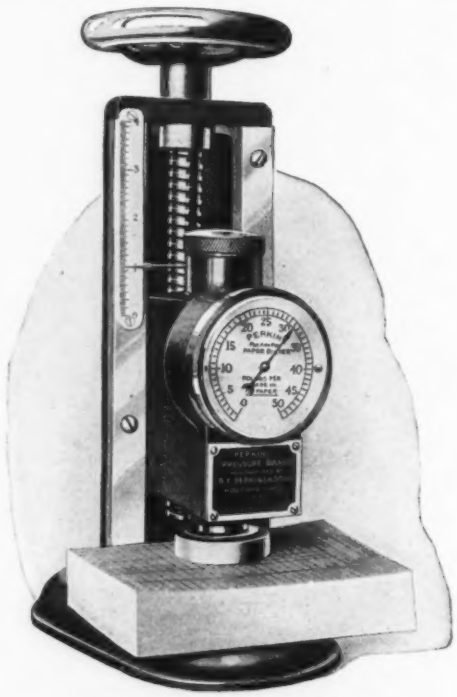


PLATE NO. 26 BULK TESTER

A useful apparatus for determining the bulk or the number of pages to an inch of a particular kind of paper. (B. F. Perkins & Sons, Inc., Holyoke, Mass.)

In specifying the bulk of a paper, where the hand clamp is used, it is necessary to specify whether heavy, medium or light pressure is used. In using the Perkins bulk tester, the pressure is specified in pounds per square inch, as indicated on the dial.

(*To be continued*)

Americanization Work by Great Northern

[FROM OUR REGULAR CORRESPONDENT]

BANGOR, Me., July 18, 1922.—The Social Service Department of the Great Northern Paper Company is carrying on an Americanization work among the 7,000 woods employees of the company. The department publishes a monthly magazine for the employees, which is an agency of contact between the management and men of the company, and is known as *The Northern*. John Francis Sprague, editor of the *Journal of Maine History* in a recent article, had this comment on the new work:

"The Social Service Department had its inception in the active brain of Manager Fred A. Gilbert in his desire to bring to the men of the spruce wood department more of the pleasures of life and to afford opportunities for diversion. Reading is provided through traveling libraries rented from the state through the state librarian these being placed at company's headquarters at Pittston, Seboomook, Grant Farm, Rice Farm, Dyer Brook and Monticello, with a librarian in charge at each station. Forty monthly and weekly magazines are taken for the men.

"Victrola music, moving pictures and addresses by good speakers are also on the program, and an effort is made to assist the foreigner who wishes to learn English."

THE BURSTING STRENGTH OF PAPER: VARIATION IN RESULTS UNDER THE SAME CONDITIONS

By E. O. Reed and F. P. Veitch of the Leather and Paper Laboratory, Bureau of Chemistry

There are very few published data concerning the accuracy of determining the bursting strength which is the characteristic by which the quality of paper is commonly judged in this country. Among the questions which those interested in paper are constantly asking, but to which there are no adequate published answers, are the following:

What are the normal differences between the individual results on a paper with the same tester?

How many tests should be made in order to secure reliable average results?

How close can average results be checked on different testers operated under the same conditions?

Douty,[1] who has presented some data bearing on these subjects, drew the following conclusion from his work: "The bursting strength tester is subject to a number of influences which cause considerable variation in its values. The differences between single observations on the same paper make it necessary to take a large number of observations: the sample should be clamped with considerable pressure; the bursting pressure applied with a uniform speed not excessively rapid, and the humidity maintained as near 65 per cent as is possible. Even with all these conditions carefully controlled, if comparisons are to be made, a liberal allowance must be granted for variations in values to different instruments and operators."

Douty tested but few samples and the work was not done where the relative humidity and temperature could be kept constant throughout the tests. However, most of his conclusions confirm general experience in making bursting strength determinations, although the data presented are not numerous enough to establish definitely the basis and conditions for the bursting strength test, and the final conclusion that a liberal allowance must be granted for variations in values due to different instruments and operators, leaves in grave doubt the practical value of the test.

The Bureau of Chemistry has secured in recent years many data on the bursting strength of paper. This paper gives results on: (1) comparison of averages from sets of averages of 5 and sets of 10 results obtained with the same tester; (2) comparison of averages from sets of 5 and sets of 10 results obtained with 3 machines of the same make; (3) maximum and minimum results on each set of 10 tests.

It is known that in order to obtain accurate and concordant results with any testing instrument, it is essential that it be properly constructed, accurately calibrated, and as free as possible from errors of manipulation. The bursting strength tester employed in the work here described was of the type generally employed in this country, in which the paper to be tested is clamped between two plates having circular holes 1.24 inches in diameter. The pressure required to burst the paper is applied by means of a hand driven piston which forces glycerine against a rubber diaphragm bearing against the paper. The pressure applied is recorded on a tubular spring gage calibrated in pounds per square inch, and the results are stated as points bursting strength. The testers used were equipped with lever clamps, heavy 7 inch hand wheels with swivel handles and knurled bed plates, and all were in the best possible condition.

The lever clamp can be operated more easily and much more quickly than the screw clamp and together with the knurled bed plate insures firm, uniform clamping of the paper, and prevents buckling and slipping which might otherwise occur and cause higher and erratic results. The lever clamp is to be preferred also because the screw clamp operated with a small hand wheel tends to twist and distort the rubber facing or washer on the under side of the upper clamp, thereby reducing the test area and thus giving high results. The shoulder of the clamping lever wears so that it is necessary from time to time to insert a thin piece of metal under it or under the back spring to make sure that the paper will be so firmly clamped that it cannot buckle.

The diameter of the circular hole in the base plate and the upper clamp, each of which should be 1.24 inch, must be carefully checked, especially that of the rubber facing on the under side of the upper clamp, and care taken that the rubber facing does not become nicked or rounded off on the edge. Errors in any of these clamp dimensions, or deformation of the facing should be corrected only by an expert, preferably the manufacturer. The glycerine in the tester should be clean and free from air bubbles. The presence of air bubbles is readily detected by forcing the diaphragm up without paper clamped in the tester and inspecting the distended diaphragm with the aid of an electric lamp. If air bubbles are present they will show up clearly. The rubber diaphragm should be renewed from time to time since it deteriorates after long contact with glycerine, and becomes permanently stretched and wrinkled. The tester must be operated at a uniform, moderate speed from the beginning of the test until the paper bursts. This uniform speed can best be obtained if the machine is equipped with the heavy 7 inch hand wheel with swivel handle.

No part of the bursting strength tester is more important than, or as delicate and liable to error as the recording pressure gage, which must be handled with great care and frequently standardized on a dead weight tester. In Table I are given four sets of check readings made by the Bureau of Standards, U. S. Department of Commerce, on a new gage against a dead weight tester, which illustrates the degree of concordance that can be expected in a gage of this type.

Table I. Quadruple Readings Under Dead Weight Pressure of 3" Mullen Paper Tester Gage No. 437479.

(0 to 160 lbs. per sq. inch)

Test Pressure lbs. per sq. in.	Gage Readings Test 1	Test 2	Test 3	Test 4
0	..	..	..	..
10	10	10	9	9¼
20	20¼	20	20	20
30	30	30	30	30
40	39½	39½	38¾	38¾
50	50	50¼	49¼	49¼
60	59¾	60	58¼	58¼
70	70	70	69¼	69¼
80	79	79½	78½	78½
90	90	90½	89½	90
100	100¼	100	100½	100½
120	120	120	119¼	120½
140	140½	140½	139¾	139½
160	159	159½	158¾	158¾

It will be observed that the gage readings vary more than a point at a number of positions on the scale, and that at only one point were all four readings alike. Probably, in use on the tester, similar or possibly greater variations may occur. For this reason, two testers, or possibly better two gages on the same tester, should always be used, checking one against the other to detect any inaccuracy of either gage. Several extra gages should be available and all gages should be calibrated frequently. Where corrections of ½ lb. or more (¼ lb. on 20 to 50 lb. gages) are indicated by dead weight calibrations, they should be applied to the gage readings. Any one of 20, 30, 50, 80 or 160 lb. gages may be used, but it is recommended that tissues and papers breaking under 20 be tested on gages of small capacity. It has been the experience of the Bureau of Chemistry that if the testing machine is equipped as

[1] Paper Trade Journal, February 10, 1910.

here described and the hand wheel is turned evenly at a moderate speed, neither very slowly nor very rapidly, the personal equation in operating is practically eliminated. Owing to the non-uniformity of paper and the variations between individual tests, the bursting strength should be expressed by the average result, while, because of the additional information which they furnish, both the maximum and the minimum results should also be given.

Samples and Testers

Thirty-two samples of paper representative of the chief classes of commercial papers and having bursting strengths from 10 to 140 points were used. Each sample consisted of 5 sheets and with each tester 10 tests were made on each sample, two on each sheet, one with the wire side of the paper up, and one with the felt side up. Three different testers were used, designated as A-160, B-160, C-160, when each was equipped with a 160 lb. gage and A-80 and B-80 when two of the testers were equipped with 80 lb. gages. All gages were previously standardized by the Bureau of Standards checked on a dead weight tester at the Bureau of Chemistry immediately before the work was done, and again checked when completed, the test readings corrected accordingly.

The average, maximum and minimum results of each series of tests are tabulated in Table II. No results were omitted in calculating the averages. Gages were read to ¼ point where possible and the averages are given to tenths of a point. In ordinary work averages should be usually stated only to the nearest half point.

All tests were made in the constant temperature and humidity room (2) at 70° F. and 65 per cent relative humidity, the samples of paper exposed to this constant condition being suspended from wires in the room for several days previous to testing. All tests were made by the same operator, who has had a long and varied experience in paper testing.

Results obtained by the Bureau of Standards, Department of Commerce, with a single tester at 70° and 65 per cent relative humidity on portions of the same sheets, are also included in the table under the designation "B. S." These results show what agreement can be expected on the same samples between two laboratories working under the best conditions and with great care. These results are not included in the discussion or in the conclusions drawn from the work.

Table II. Bursting Strength of Same Samples on the Same and on Different Testers

(All tests made at 70° F., temperature 65%, relative humidity.)

L. & P. No.	Kind of Paper	Tester	Bursting Strength Av. 10 Breaks Av. pts.	Max. pts.	Min. pts.	Difference between averages: Maximum Dif. Testers 10 breaks pts.	5 breaks pts.	Maximum Same Tester 10 breaks pts.	5 breaks pts.
39,291	White Ledger..	A-160	117.5	128.0	111.5	5.0	5.2	..	3.4
		B-160	116.0	122.5	95.75	..	..	..	2.1
		C-160	121.0	132.5	109.0	..	..	..	1.0
		B.S.	118.0	128.0	110.0	..	..	..	..
39,292	White Ledger..	A-160	79.5	85.8	70.0	2.0	6.6	0.4	6.5
		B-160	78.0	84.0	73.25	..	..	..	2.3
		C-160	77.5	81.5	72.5	..	..	..	2.7
		B-160	78.4	83.5	73.25	..	..	..	..
		B.S.	80.0	89.0	72.0	..	..	..	..
39,288	White Ledger..	A-160	83.7	87.5	76.0	2.7	4.0	..	1.3
		B-160	81.0	84.5	75.75	..	..	..	1.3
		C-160	82.3	87.0	78.0	..	..	..	0.1
		B.S.	82.0	85.0	78.0	..	..	..	..
39,289	White Ledger..	A-160	66.5	69.0	62.25	2.4	2.9	1.3	0.7
		B-160	64.1	67.0	61.0	..	..	..	0.1
		C-160	65.0	69.25	58.75	..	..	..	0.2
		B-160	65.4	74.25	56.25	..	..	..	..
		B.S.	71.0	75.0	66.0	..	..	..	..
39,290	White Ledger..	A-160	63.9	68.5	56.0	6.4	5.8	1.5	1.2
		B-160	59.0	63.0	54.5	..	..	..	0.8
		C-160	59.1	63.5	55.8	..	..	..	0.9
		B-160	57.5	63.5	52.0	..	..	..	..
		B.S.	60.0	64.0	56.0	..	..	..	..
39,295	White Bond...	A-160	39.4	42.0	34.6	2.7	3.3	..	0.7
		B-160	33.9	36.0	32.0	..	..	..	1.5
		C-160	33.4	36.0	31.25	..	..	..	0.7
		B-160	33.6	35.0	32.0	..	..	..	..
		B.S.	38.0	39.0	37.0	..	..	..	..
39,295	White Bond...	A-160	39.4	42.0	34.6	2.7	3.3	..	0.7
		B-160	37.3	40.5	32.0	..	..	..	1.2
		C-160	36.7	40.75	33.25	..	..	..	0.8
		B.S.	40.0	45.0	36.0	..	..	..	..
39,301	White Bond...	A-160	29.8	35.5	26.0	0.9	3.3	..	2.1
		B-160	29.1	34.25	25.0	..	..	..	0.4
		C-160	28.9	33.25	24.25	..	..	..	2.7
39,293	White Bond...	A-160	18.2	20.0	16.25	1.7	2.3	1.2	1.8
		B-160	18.9	20.25	17.75	..	..	..	0.1
		C-160	17.2	18.75	15.6	..	..	..	0.9
		A- 80	17.7	19.3	16.1	..	..	..	..
		B- 80	17.7	18.2	17.0	..	..	..	..
39,297	White Bond...	A-160	11.2	13.5	9.25	2.1	2.5	0.6	0.1
		B-160	11.0	12.75	8.0	..	..	..	0.2
		C-160	9.8	11.25	8.0	..	..	..	0.1
		A- 80	9.1	10.5	7.0	..	..	..	..
		B- 80	10.4	12.3	8.2	..	..	..	..
		B.S.	12.0	14.0	11.0	..	..	..	..
39,298	White Writing.	A-160	36.3	39.5	26.0	0.7	2.1	..	2.7
		B-160	35.6	37.25	32.0	..	..	..	0.3
		C-160	36.0	39.75	33.25	..	..	..	0.3
39,302	White Writing.	A-160	32.7	36.6	26.0	0.9	1.8	..	1.2
		B-160	31.8	34.25	30.0	..	..	..	0.5
		C-160	32.7	36.0	28.25	..	..	..	1.5
39,296	White Writing.	A-160	32.5	38.0	30.0	2.6	3.2	0.1	0.5
		B-160	31.6	36.75	26.75	..	..	..	1.5
		C-160	29.9	33.25	25.25	..	..	..	0.2
		B-160	31.7	34.75	27.25	..	..	..	..
		B.S.	32.0	35.0	29.0	..	..	..	..
39,294	White Writing.	A-160	23.9	26.25	21.0	1.5	3.0	0.2	0.4
		B-160	23.8	25.4	21.0	..	..	..	1.5
		C-160	22.4	25.0	20.25	..	..	..	1.6
		B-160	23.6	27.0	19.75	..	..	..	..
		B.S.	26.0	28.0	25.0	..	..	..	..
39,300	White Writing.	A-160	18.2	20.0	16.25	1.5	2.1	1.3	0.1
		B-160	19.2	20.75	17.5	..	..	..	0.3
		C-160	17.7	20.25	16.1	..	..	..	1.7
		A- 80	17.7	19.0	15.7	..	..	..	..
		B- 80	17.9	19.6	16.1	..	..	..	..
		B.S.	21.0	22.0	20.0	..	..	..	..
39,308	S. & S. C..... Printing	A-160	16.1	17.75	13.25	1.7	2.2	..	.09
		B-160	15.3	16.75	13.75	..	..	..	0.6
		C-160	14.6	15.6	13.75	..	..	..	0.3
		A- 80	14.4	15.6	13.5	..	..	..	..
		B- 80	14.8	17.0	12.9	..	..	..	..
39,305	S. & S. C..... Printing	A-160	15.9	16.25	15.1	2.0	2.2	1.7	0.7
		B-160	15.1	16.75	14.0	..	..	..	0.1
		C-160	13.9	14.0	13.25	..	..	..	0.1
		A- 80	14.2	15.6	12.5	..	..	..	..
		B- 80	15.3	16.2	14.0	..	..	..	..
39,310	S. & S. C..... Printing	A-160	17.8	19.5	16.5	1.7	2.2	0.4	0.6
		B-160	17.6	19.5	16.0	..	..	..	0.6
		C-160	16.1	18.0	13.5	..	..	..	0.3
		A- 80	17.4	18.5	16.3	..	..	..	..
		B- 80	17.0	18.0	14.0	..	..	..	..
39,309	Machine Finish. Printing	A-160	11.8	13.25	10.75	1.9	2.8	2.2	0.1
		B-160	12.1	13.0	8.75	..	..	..	1.1
		C-160	10.2	11.0	8.75	..	..	..	0.8
		A- 80	10.6	11.5	9.0	..	..	..	..
		B- 80	12.0	13.0	10.8	..	..	..	..
		B.S.	12.0	14.0	12.0	..	..	..	..
39,306	Machine Finish. Printing	A-160	14.3	16.1	13.0	1.1	1.8	0.6	1.2
		B-160	14.3	14.75	13.5	..	..	..	0.2
		C-160	13.2	13.75	11.5	..	..	..	0.1
		A- 80	13.7	15.0	9.8	..	..	..	..
		B- 80	14.1	16.0	13.0	..	..	..	..
39,307	Rag Machine... Finish Printing.	A-160	12.8	13.5	10.75	2.1	2.5	1.1	0.8
		B-160	12.1	13.75	10.75	..	..	..	0.5
		C-160	10.7	12.25	9.75	..	..	..	0.2
		A- 80	11.7	14.5	10.2	..	..	..	..
		B- 80	12.6	14.0	11.0	..	..	..	..
39,303	Antique Printing	A-160	11.8	12.25	9.75	1.5	1.9	1.1	0.5
		B-160	12.2	13.0	10.5	..	..	..	0.1
		C-160	10.9	11.75	10.0	..	..	..	0.5
		A- 80	10.7	11.4	9.6	..	..	..	..
		B- 80	12.0	13.25	9.6	..	..	..	..
		B.S.	13.0	14.0	12.0	..	..	..	..
39,304	Antique Printing Deckle E....	A-160	15.9	16.25	14.9	1.7	2.0	1.6	0.8
		B-160	16.0	17.25	14.75	..	..	..	0.5
		C-160	14.3	15.1	13.75	..	..	..	0.1
		A- 80	14.3	15.1	12.6	..	..	..	..
		B- 80	14.9	15.9	13.8	..	..	..	..
		B.S.	18.0	19.0	16.0	..	..	..	..

(2) Paper (1921) 21, No. 23, pp. 174-80.

L. & P. No.	Kind of Paper	Tester	Bursting Strength Av. 10 Breaks Av. pts.	Bursting Strength Av. 10 Breaks Max. pts.	Bursting Strength Av. 10 Breaks Min. pts.	Difference between averages: Maximum Dif. Testers 10 breaks pts.	Maximum Dif. Testers 5 breaks pts.	Maximum Same Tester 10 breaks pts.	Maximum Same Tester 5 breaks pts.
39,311	Coated Book, 2 sides	A-160	19.1	20.25	17.25	1.8	2.0	0.4	0.6
		B-160	19.2	20.75	16.25	..	..	..	0.5
		C-160	17.4	18.4	15.6	..	..	..	0.4
		A- 80	18.7	20.4	17.25	..	..	..	..
		B- 80	18.2	20.2	14.8	..	..	..	..
		B.S.	21.0	22.0	20.0	..	..	..	..
39,312	Coated Bock, 2 sides	A-160	18.3	19.75	16.25	1.5	1.8	0.4	0.0
		B-160	17.8	19.5	15.75	..	..	..	0.4
		C-160	16.8	18.4	14.6	..	..	..	0.3
		A- 80	17.9	19.5	15.6	..	..	..	..
		B- 80	17.1	18.4	15.5	..	..	..	..
39,285	Sulphite Manila	A-160	31.0	38.0	21.5	3.1	3.0	3.1	4.1
		B-160	32.2	43.0	27.25	..	..	..	0.3
		C-160	30.7	38.0	25.25	..	..	..	1.2
		B-160	29.1	40.0	21.5	..	..	..	..
		B.S.	34.0	38.0	30.0	..	..	..	..
39,284	Kraft	A-160	38.6	46.25	25.0	2.9	6.7	..	2.2
		B-160	40.9	44.25	34.25	..	..	..	0.9
		C-160	38.0	47.0	31.75	..	..	..	6.6
		B.S.	43.0	46.0	33.0	..	..	..	..
39,283	Kraft	A-160	42.9	48.25	39.0	2.3	2.8	0.2	0.7
		B-160	40.8	44.25	33.5	..	..	..	1.9
		C-160	42.0	48.5	35.5	..	..	..	0.4
		B-160	40.6	45.75	26.25	..	..	..	..
		B.S.	43.0	48.0	37.0	..	..	..	..
39,282	Sulphite Manila	A-160	84.1	103.5	51.25	0.9	6.5	..	4.2
		B-160	84.3	102.5	65.0	..	..	..	5.2
		C-160	85.0	101.0	65.5	..	..	..	5.1
		B.S.	83.0	95.0	67.0	..	..	..	..
39,281	Rope Manila...	A-160	136.8	148.5	130.25	16.6	24.0	8.5	1.0
		B-160	120.2	140.75	98.75	..	..	..	15.0
		C-160	131.0	155.5	90.25	..	..	..	1.0
		B-160	128.7	141.75	120.5	..	..	..	..
		B.S.	137.0	160.0	120.0	..	..	..	..
39,287	Smooth Blue Cover	A-160	40.2	45.75	33.5	2.2	3.2	2.0	0.0
		B-160	38.0	42.5	34.75	..	..	..	2.0
		C-160	38.0	41.75	35.25	..	..	..	0.3
		B-160	40.0	44.25	35.0	..	..	..	..
		B.S.	41.0	46.0	37.0	..	..	..	..
39,286	Rough Cover...	A-160	47.0	55.0	38.0	1.1	3.4	..	1.1
		B-160	47.2	52.0	41.0	..	..	..	2.6
		C-160	46.1	52.0	40.75	..	..	..	2.0
		B.S.	53.0	56.0	47.0	..	..	..	..

Discussion of Results

The Averages of 5 Tests

In order to save space and avoid crowding, the figures showing the averages of 5 tests are not tabulated. A summary of these figures is given in Table III.

Table III. Summary of Averages of 5 Tests

Number of comparisons on same machine	96	
Number of comparisons in which the difference between averages on same machine is 1 point or less	59	(62%)
Number of comparisons in which the difference between averages on same machine is between 1 and 2 points	20	(22%)
Number of comparisons in which the difference between averages on same machine is between 2 and 3 points	8	
Number of comparisons in which the difference between averages on same machine is 3 or more	7	
Number of comparisons on different machines	380	
Number of comparisons in which the difference between averages on different machines is 1 point or less:		
On 14 papers breaking below 20 pts. (168 comp.)	64	(38%)
On 12 papers breaking from 20 to 60 pts. (140 comp.)	50	(35%)
Number of comparisons in which the difference between averages on different machines is 2 points or less:		
On 14 papers breaking below 20 pts. (168 comp.)	139	(80%)
On 12 papers breaking from 20 to 60 pts. (140 comp.)	100	(71%)
On 6 papers breaking from 60 to 130 pts. (72 comp)	33	(44%)
On 6 papers breaking from 60 to 130 pts. (72 comp.) dif. 4 or less	58	(80%)

The averages of 5 tests on each paper were arrived at by making two sets of breaks on each tester consisting of one break on each of the 5 sheets in each sample. Table III probably needs little discussion. It shows that averages of 5 tests on the same machine may differ from each other by more than 1 point in about 40 per cent of the comparisons, while 16 per cent differ more than 2 points. It may be added that on the 14 papers breaking less than 20 points there were no instances where the differences between averages of 5 tests was more than 2 points. The 16 instances where the difference between averages on the same machine is more than 2 points were about equally divided between papers breaking below 60 points and those breaking above 60 points.

The differences between averages of 5 tests is but little more with different machines than with the same machine. The results indicate that averages of 5 tests on the same machine will differ 2 or more points in about 20 per cent of the instances, while the averages of 5 tests on different machines differ 2 points or more in about 28 per cent of the instances.

Averages of 10 Tests

Of the 10 comparisons of averages of 10 tests on the same machine 5 or 50 per cent differ 1 point or less while 9 or 90 per cent differ less than 2 points. There are 207 comparisons of the averages of 10 tests on different machines. The maximum difference between averages of 10 tests on the 5 machines (same machine with different gages considered 2 machines) is 1 or less on 4 papers (12 comparisons); 2 or less on 19 (includes 4 less than 1 point) papers (107 comparisons); and more than 3 on 4 papers; while on 9 papers it falls between 2 and 3 points. In 87 per cent of the comparisons the differences between averages are less than 2 points. That is to say, in only about 13 per cent of the cases do the differences between averages of 10 tests on different machines exceed 2 points, while on the same machine the differences between averages of 10 tests exceed 2 points in but 10 per cent of the instances. The maximum differences between averages of 10 tests on the same and on different machines are shown graphically in Figure I.

The results of the comparisons on different testers may be stated on the basis of the total number of papers tested rather than on the basis of the total number of actual comparisons. Thirty-two papers were actually used in these studies. Some were tested with 3 machines, some with 5. The maximum difference between averages of 10 tests on different testers is less than 1 point on 4 papers or 12 per cent; 2 or less on 19 papers or 60 per cent; between 2 and 3 points on 9 papers or 28 per cent; and more than 3 points on 4 papers or 12 per cent. These last papers were ledgers and wrapping papers.

Expression of Results

The differences between average results have, so far in this paper have been expressed in terms of actual points. They may, of course, be expressed either as points difference or as percentage. Inspection of the maximum differences obtained between 10 tests on different testers on each paper shows the percentage difference expressed on the approximate average of all results on each paper to be, approximately as follows:

Ledger paper from	3% to 7%
Bond paper from	3% to 20%
Writing paper from	2% to 8%
Printing paper from	7% to 17%
Wrapping paper from	1% to 13%
Cover paper from	2% to 5%

These are the maximum percentage differences in all classes of papers. While there are many differences that are less than 5 per cent, in fact less than 3 per cent, there are, nevertheless, many that are much above 5 per cent, even above 8 per cent. These large percentage differences occur, as a rule, on the papers having the lowest bursting strengths. The indications are that differences of 20 per cent are to be expected between averages of 10 breaks on different testers operated under the same conditions and that diffrences of 8 per cent to 10 per cent or more are to be expected frequently, especially on papers of bursting strength of less than 25 points. That these percentage differences may be decidedly greater is shown by comparing the results obtained by the Bureau of Standards on these papers with those obtained by the Bureau of Chemistry. The maximum percentage difference is raised in many instances and exceeds 10 per cent in 15 out of 22 comparisons.

It will be noted that the results of the tests, at the same con-

XUM

ditions, by the Bureau of Standards, are higher in 16 instances out of 22 comparisons than any Bureau of Chemistry average. In 8 out of the 16 instances they were within 1 point of the highest average of the Bureau of Chemistry and in 4 instances they were more than 2 points above the highest average of the Bureau of Chemistry.

Paper Varies More Than Tester

That paper varies considerably in strength at different points, even in the same sheet, is generally known. Some experienced men have expressed the opinion, however, that this difference is no greater than the difference between readings of the gage itslf.

The extent to which carefully standardized and corrected gages may differ on the same break is indicated in Table IV, showing the individual breaks on a tester, equipped first with a single gage as usual and subsequently also with 2 and with 3 gages. Where more than one gage was on the tester all the connecting pipes were straight and of the same size.

Table IV. Readings on Different Gages on the Same Break

Paper A		Paper B			Paper C			
2 gages		1 gage	2 gages		1 gage	3 gages		
160 lb. g.	80 lb. g.	160 lbs.	160 lbs.	80 lbs.	160 lbs.	160 lbs.	80 lbs.	80 lbs.
29.0	28.5	39.0	39.0	39.5	27.5	27.0	26.5	27.0
26.0	26.5	38.0	40.0	39.5	28.0	29.0	30.0	29.0
29.0	28.5	38.0	35.0	36.0	29.0	31.0	32.0	32.0
24.5	24.5	40.0	38.0	38.0	27.0	28.0	28.0	27.5
27.5	27.5	38.0	40.0	40.5	28.0	28.0	28.0	28.0
23.0	23.5	38.0	38.0	38.5	28.0	28.0	29.0	28.5
28.0	27.5	35.5	35.0	34.5	29.5	27.0	26.5	26.5
28.0	27.5	35.5	35.0	34.5	29.5	27.0	26.5	26.5
26.0	26.5	40.0	38.0	39.5	27.0	27.0	27.0	27.0
25.5	26.0	...	36.0	36.5	27.0	30.0	30.5	30.5
26.65	26.7	38.5	37.65	38.00	28.1	28.2	28.45	28.3

Under each paper the figures given on the same horizontal line are the readings on the same break when 2 or more gages were on the machine. Under papers B & C, readings obtained with a single gage are also given.

On paper A, differences of 3 or 4 points between different breaks are not unusual while the maximum is 6 with one gage and 5 with the other. The difference in readings between the two gages on the same break is never more than ½ point. On papers B and C, the differences between breaks is but little less than on paper A, while the difference between gage readings on the same break is but 1 in four instances and 1½ in one instance.

These results show clearly that the bursting strength of a sheet of paper varies much more than does the reading of several gages on the same break. These results simply confirm directly what is indicated by a comparison of averages with maximum and minimum results in any set of tests.

Summary

1. When the bursting strength tester is carefully adjusted and operated by the same person under identical conditions on paper breaking from 10 points to 130 points, the difference between averages of 5 breaks on the same machine is 2 points or less in about 80 per cent of the instances. Differences greater than 2 points occur usually with papers having high bursting strengths.

2. The differences between averages of 10 breaks on the same tester are 2 points or less in about 90 per cent of the instances.

3. The differences between averages of 5 breaks on different testers is 2 points or less in about 78 per cent of the instances; with paper breaking 60 to 130 points the difference between averages of 10 breaks falls within 2 points in but 44 per cent of the instances.

4. Between averages of 10 tests on different machines a difference of between 2 and 3 points occurred in 11 instances out of 169 (6 per cent), 8 instances being on paper breaking below 50 points. The maximum difference between averages of 10 breaks on different testers is 2 points or less in 87 per cent of the instances.

5. A difference of more than 2 points between averages of 10 breaks on the same tester occurred in 2 instances out of 10 (20 per cent) (both wrapping paper).

6. Provided the testers are properly equipped and adjusted, the differences between averages on several testers ar negligibly greater than those between averages on the same tester.

7. The differences between averages of 5 and averages of 10 breaks are sufficiently great to show that at least 10 breaks should always be made.

8. Approximately 90 per cent of all comparable averages differed less than 3 points.

9. Expressed as percentage, the maximum differences between averages of 10 breaks on different machines are from 3 per cent to 20 per cent and the percentage differences are usually decidedly greater on papers of low bursting strength.

10. The difference between breaks at different points in a sheet of paper is much greater than the difference between readings on different gages on the same break. The difference between gage readings on the same break is 1 or less in the vast majority of cases and such differences as occur are negligible when 5 or 10 breaks are averaged.

11. The normal difference between individual breaks on the same sample and on the same tester may reach 40 per cent of the minimum result on paper of practically any class. Usually this difference is much less, being nearly 20 per cent. On wrapping papers the difference may reach 100 per cent.

12. In any important work at least 10 tests, 1 test on each sheet, should be made on a representative sample of the paper, and these averaged. Two testers or 2 gages on the same tester should be used.

13. A comparison of averages on more machines than used in this work, or of averages obtained by different operators can only tend to widen the differences reported here.

New Catalogs and Bulletins

The Hill Clutch Company of Cleveland, Ohio, recently issued Bulletin No. 112 devoted to a description of its new Cleveland Type Hill Collar Oiling bearing which is furnished in all styles of standard rigid and ball and socket mountings. The bulletin contains illustrations of the new bearing and copies may be obtained from the Cleveland plant or through the New York sales office located in the Hudson Terminal Building, 50 Church street.

The Electric Furnace Construction Company, 908 Chestnut street, Philadelphia, announces the publication of two new catalogs one on Electric Furnaces for Melting, Refining and Superheating of Iron and Steel, and the other on the "Electro" Steam Boiler, developed by F. T. Kaelin, chief engineer of the Shawinigan Water & Power Company.

Paper Industry Asks Aid of Cornell Foresters

The need for classes in vocational education among paper mills of New York State has resulted in a request by the Technical Association of the Pulp and Paper Industry to the extension department of the New York State College of Agriculture at Cornell University to aid in the establishment of such classes through their field staff.

The matter has been taken up through the department of forestry of the State College of Agriculture, because of the vital interest of the paper industry in forestry. The American Paper and Pulp Association has led the industries of the country in a campaign for adequate forestry legislation, because the industry is dependent upon the forests. The industry has, through the Technical Associations of the industry in the United States and Canada, spent over $40,000 in the preparation of text books to be used by the employees in the mills, and the negotiations with the authorities at Ithaca have been inaugurated by R. S. Kellogg, Secretary of the News Print Service Bureau, who is secretary of the joint comittees on vocational education of the technical organization of the paper industry in the United States and Canada.

XUM

CURRENT PAPER TRADE LITERATURE

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

Properties, Chemistry and Testing of Raw Materials and Finished Product

The Glarimeter—An Instrument for Measuring the Gloss of Paper.—L. R. Ingersoll. *J. Optical Soc. American,* v, 213-217 (1921); *Chem. Abs.,* xv, 3745 (Nov. 10, 1921).—A new optical system for the earlier instrument is described. The gloss may be expressed directly in terms of the per cent of polarization or in terms of the readings of the circle in ordinary degrees whichever may be preferable. Ordinary magazine paper shows from 25 to 40°.—A. P.-C.

The Constitution of Cellulose and of Cellobiose.—A. D. Von Euler. *Chem. Ztg.,* xlv, 97-978, 998 (1921); *J. Soc. Chem. Ind.,* xl, 764A (Nov. 15, 1921).—A structural formula for cellulose is advanced which is in agreement with its constitution as a high molecular condensation product and which may be reconciled with the properties of its derivatives and fission products. Two variations of the formula are proposed which contain the *p*-dioxan ring of Green's formula, but which have the advantage over the latter that they contain a chain of hexose molecules of any desired length. The author was not aware of the work of Haworth and Leitch on the constitution of cellobiose when this paper was written.—A. P.-C.

Sulphite Manufacture and Equipment

Analysis of Reclaimed Cooking Acid for Sulphite Mills.—Gosta P. Genberg, Nekoosa-Edwards Paper Co. PAPER TRADE J., lxxiv, No. 15, 275,277 (April 13, 1922); *Paper,* xxx, No. 7, 122-123 (April 19, 1922) *Paper Ind.,* iv, 83-85 (April, 1922).—The author recommends the following scheme of analysis. *Total SO_2.* Dilute 20 cc. of liquor to 500 cc.; measure out a convenient amount of the diluted solution out of a 50 cc. burette, add excess of sixteenth-normal iodine solution to light yellow coloration, and titrate back with the liquor in the burette. *Organic Matter.* Add 50 cc. of concentrated hydrochloric acid to 50 cc. of liquor, evaporate to dryness, take up with 5 cc. of hydrochloric acid and 100 cc. of water, boil 10 minutes, filter hot, wash six times with hot water, dry at 105° C, and weigh as organic matter. *Sulphur Trioxide.* Boil the filtrate from the determination of "organic matter" for 5 minutes, add 50 cc. of barium chloride solution, boil five minutes longer, allow to settle over night, filter, wash, ignite and weigh. *Lime as Calcium Sulphate.* Multiply the amount of sulphur trioxide found by 0.7. *SO_2 and CaO combined as Calcium Monosulphite.* To 50 cc. of liquor add, drop by drop, with constant stirring, 15 cc. of 26% ammonia and allow to settle for 10 minutes. Filter, wash with three 25 cc. portions of 14% ammonia, wash the precipitate into a 500 cc. flash, add 5 cc. of concentrated hydrochloric acid, dilute to the mark, transfer to a burette and titrate against sixteenth-normal iodine as in the determination of total SO_2. SO_2 multiplied by 0.875 gives CaO combined as calcium monosulphite. *Free SO_2.* Subtract the combined SO_2 from the total SO_2. *Total Lime.* The determinations of *CaO* combined with SO_2 and with SO_2 are checked by diluting 20 cc. of liquor to 200 cc., boiling with hydrochloric acid to drive off SO_2, and precipitating the lime as oxalate in the usual manner. Results of a series of tests are given, showing that the average error is +2.3 and —1.8% respectively.—A. P.-C.

Concerning the Analysis of Raw Sulphite Acid.—Rudolf Sieber. Translation by Carl L. Fineman and W. E. Byron Baker in *Paper Trade J.,* lxxiv, No. 15, 277-283 (April 13, 1922); *Paper Ind.,* iv, 271-277 (May, 1922); also, translation by C. J. West in *Paper,* xxviii, No. 5, 24-27 (Aril 6, 1921).—Results are given of a comparative investigation into the practical usefulness of old and new methods of analyzing sulphite liquors. Of the new methods Sander's, and of the old a modification of Hohn's, are practical, and these are recommended for the mill laboratory and for the mill itself.—A. P.-C.

Determination of Sulphur Dioxide and Trioxide in Burner Gases.—R. Dieckmann. *Chem. Ztg.,* xlv, 885 (1921); *Chem. Abs.,* xvi, 37 (Jan. 10, 1922).—E. Berl has claimed that the absorption of sulphur dioxide and trioxide in gas mixtures by caustic soda is uncertain and recommends the addition of stannous chloride to the absorbent. Values are given for 7 analyses which indicate that caustic soda alone is a satisfactory absorbent if the absorption takes place in the wash bottle recommended by Schilling. It is true, as Berl claimed, that the results are likely to be a little too low for sulphur dioxide and a little high for sulphur trioxide; but the average value of the per cent by volume of sulphur dioxide was only 7.96 when stannous chloride was used with the caustic soda and 7.87 when caustic soda alone was used.—A. P.-C.

Sulphur in Sulphite Waste Liquor.—George Barsky, Columbia Univ. *Paper Trade J.,* lxxiv, No. 15, 315-323 (April 13, 1922).—An investigation into the form of combination of the sulphur in sulphite waste liquor. "Free SO_2" is the sum of the sulphurous acid, the bisulphite, and the sulphite (all expressed as SO_2). It is usually determined with standard iodine and starch indicator. The effect of dilution on the end point varies directly as the dilution, as it represents the amount of standard solution required for the titration of amounts of pure water. The amount of free SO_2 increases with the dilution at a decreasing rate, showing that there is present some very unstable form of combination of SO_2. The smallness of the increase shows that it is present in small amounts or that an equilibrium exists between the free and combined SO_2 and that the equilibrium conditions are satisfied by small concentrations of SO_2. Profound decomposition of SO_2-bearing substances occurs when waste liquor is heated to even a moderate temperature. For strictly concordant results the free SO_2 must be titrated at a low temperature, and preferably at the same temperature every time. This is most easily done by adding ice to the solution, the error of dilution thus caused being negligible. "Loosely combined SO_2" is that which is readily removed from the organic molecule by treating with alkali solution. For this determination, the mixture of liquor and alkali solution must be allowed to remain on the water bath at least ten minutes, to obtain concordant results. At room temperature, the reaction between liquor and alkali comes to a final equilibrium in about 10 minutes. When the temperature is raised to that of the water bath, an additional amount of SO_2 is split off, due to another reaction, not to a change in the equilibrium, equilibrium being reached in about 40 minutes. For every two molecules of SO_2 which can be removed at low temperatures, an additional molecule can be removed by heating on the water bath. By boiling sulphite waste liquor, a nearly constant SO_2 content is reached in about four hours. Of the loosely combined, one part is removed by boiling while two parts are unaffected.—A. P.-C.

Determination of Methanol (in Sulphite Spirits).—Karl H. A. Melander. *Svensk Pappers-Tid.,* xxiv, 277-278 (1921); *Chem. Abs.,* xvi, 222 (Jan. 20, 1922).—Place 22 grams of iodine and 5 cc. of the methyl alcohol solution containing about 2% of methyl alcohol in a Jena flask. Attach the flask to a condenser, then

XUM

to a wash bottle containing a little red phosphorus in water at 50 degrees and supplied with a bulb to prevent suction, and finally to an absorption apparatus containing a few cc. of pyridine. Pass hydrogen through the apparatus slowly while the flask is heated to about 70° for half an hour. Then increase the heat, run warm water through the condenser and pass hydrogen rapidly for another half hour. Concentrate the pyridine solution on a water bath, dissolve in water, add a few drops of sodium chromate solution, and titrate with decinormal silver nitrate.—A. P.-C.

The Yield of Sulphite Coal.—R. W. Strehlenert. *Svensk Pappers-Tidning,* xxiii, 459-460 (1920); *Chem. Abs.,* xv, 1991 (June 20, 1921).—The yield of 200 kilos of dry fuel per ton of pulp as previously announced is corrected. By using both the precipitation method and the evaporation method the yield is raised to 600-680 kilos per ton of pulp.—A. P.-C.

Automatic Control of Paper Mill Processes.—The Crandon Acid System. *Paper,* xxvi, No. 23, 24 (Aug. 11, 1920).—A brief description of the advantages of the Crandon Acid System.—A. P.-C.

Construction and Operation of an Aerial Pulp Conveyor.—*Paper,* xxvi, No. 23, 20, 32 (Aug. 11, 1920).—Description of the construction and operation of the aerial pulp conveyor in use at the mill at West Linn, Ore., of the Crown Willamette Paper Co.—A. P.-C.

The Use of Ball Bearing in Paper Machinery.—*Paper,* xxvi, No. 25, 11-13, 46 (Aug. 25, 1920).—The general advantages of ball bearings are lowered friction and consequently reduced power charges, increased accuracy of operation and consequent improvement in the quality of the product, reduction of maintenance charges. The particular advantages to be derived from using them for barkers, grinders, wet machines, jordans, fourdriniers, cylinder machines, press rolls, dryer rolls, and calenders, are reviewed.—A. P.-C.

Manufacture of Paper Threads.—J. G. Varlot. *Papeterie,* xlii, 2-15 (Jan. 10, 1920); *Paper,* 15-18, 29 (Sept. 1, 1920).—Translation by A. Papineau-Couture. See *Pulp and Paper,* xviii, 471, L-7, April 29, 1920.—A. P.-C.

Systematic Fire Prevention.—*Paper,* xxvi, No. 26, 25 (Sept. 1, 1920).—A description of the organization at the Kimberly-Clark and Neenah Paper Companies mills at Appleton, Neenah, Kimberly, and Niagara, Wis., for efficient fire-fighting.—A. P.-C.

Value of Oil Filters Tested. The Richardson Filtering System.—*Paper,* xxvi, No. 26, 22-23 (Sept. 1, 1920).—Results of tests carried out at Cornell University, on oil taken from a Richardson Central Oiling and Filtering System, to determine what changes take place in oil that is repeatedly used for lubrication, showed that for all practical purposes properly filtered oil is as good a lubricant as new oil under all operating conditions. The filtering device of the Richardson System is described in some detail.—A. P.-C.

Safety First Cuts Accidents.—*Paper,* xxvi, No. 25, 14 (Aug. 25, 1920).—A brief description of Safety First methods which are successfully employed in the wood yard, wood room, pulp mill, rag room, beater room, calender room, and shipping room.—A. P.-C.

Standardized Export Terms for Use by All Industries.—*Paper,* xxvi, No. 25, 10, 24-25 (Aug. 25, 1920).—A detailed explanation of the meaning of the terms *F. O. B., F. A. S., C. & F., C. I. F., L. C. L.,* and of the way they should be used.—A. P.-C.

Ethyl Alcohol from Sulphite Waste Liquor.—H. Braidy. *Rev. Gén. Mat. Col.,* xxv, 65-70, 85-90 (1921); *Chem. Abs.,* xv, 3206 (Sept. 20, 1922).—A study of the feasibility of producing ethyl alcohol from sulphite waste liquors. The general composition of the liquors, the procedures recommended for their utilization, and the economic outlook offered by the operation of these procedures are discussed. Numerous references to the literature are given.—A. P.-C.

The Chemistry of the Sulphite Process.—R. N. Miller and W. H. Swanson, Forest Products Lab., Madison, Wis. PAPER TRADE J., lxxiv, No. 15, 295-305 (April 13, 1922); *Paper,* xxx, No. 7, 96-104 (April 19, 1922); *Paper Ind.,* iv, 257-261 (May, 1922).—A series of experimental cooks were made under the same conditions and blown prematurely, and the pulp and liquor were examined at the end of each prematurely blown cook. The cooks were carried out in a 50 pound digester, on white spruce from Rib Lake, Wis., with acid having the following composition: total SO_2 3.80%, free 2.40, combined 1.40. The chips were steamed with live steam for half an hour, the digester was filled with acid and allowed to stand overnight, and in the morning enough acid was added to make up for what had been absorbed by the chips. Indirect heating was used. The temperature was raised to 100° in 3 hours, to 145° in 8.5 hours and held there to the end. The pressure was not allowed to exceed 65 pounds per square inch. Samples of liquor were drawn off and analyzed at the end of 4, 7, 9, 10, 11, 11.5, 12, 12.5, and 13.25 hours; and the contents of the relief receiver and gas tank were examined at the end of each cook. The true values for the concentration of SO_2 in its various forms of combination were obtained by taking the iodine titration as a measure of the total SO_2, the combined SO_2 by the Sander method as the measure of the combined SO_2, and the difference between them as the true free SO_2. A discussion of the analytical results obtained lead to the following conclusions. Under the conditions of cooking which were employed, the cooking was complete at or about the eleventh hour. The reaction involving the combination of base ceased at about the same time that the pulp was at its best. There is a loss in the total base present in the solution much greater than the small amount leaving the digester through the relief. The analytical data indicate that this is due to precipitation of the lime on the fiber, in part at least. The base unaccounted for is probably deposited on the heating coils or is lost in washing the pulp. The removal of the lignin had proceeded to a certain extent before the fourth hour and 110° had been reached, attained a considerable speed at temperatures but little above 100°, and proceeded with vigor through all temperatures that are commonly thought of as intermediate. At the time when the best pulp was obtained (11 hours) the lignin content is in close agreement with that of strong Mitscherlich pulp, *viz.,* 7.56%. Loosely combined SO_2 values show a decline after reaching a maximum at 11.5 hours, suggesting a decomposition and liberation of SO_2 in the later stages of the cook. The organic combined sulphur shows a rapid increase over the periods during which there is rapid removal of the lignin; but it does not reach an approximate maximum until the end of the cook, showing that the action of sulphonation may continue upon the lignin already separated. When the combined SO_2 content of the liquor (determined by Sander's method) becomes constant, it shows the point at which further cooking will not greatly improve the pulp. The applications of these reactions in the mill will be of value for determining the location of defects in cooking methods rather than as control methods. Under the conditions of the experimental cooks, a pulp that would be equivalent in all respects to commercial pulps could not be made. Another cook was made with acid having the following composition: total 5.60%, free 4.46, combined 1.14. The temperature was brought to 100° in 3.5 hours, and was then raised at a rate not exceeding 3° an hour to a maximum of 137°. The maximum pressure was 65 pounds, and the cook was blown at the end of 15 hours. The color of the pulp was excellent, strength good, the pulp was readily bleachable, and the cellulose and lignin contents were 96.05

XUM

and 1.62%, respectively. The authors conclude therefrom that, while sulphonation may be an essential part of the reaction in sulphite cooking, it is of greater importance, from the standpoint of the commercial value of the pulp, to maintain at the finish conditions favorable to hydrolytic reactions, *viz.*, a high concentration of free SO_2.—A. P.-C.

Bleaching, Bleach Manufacturing and Equipment

The Electrometric Titration of Hypochlorous Acid.—W. D. Treadwell. *Helv. Chim. Acta*, iv, 396-405 (1921); *Chem. Abs.*, xv, 3052 (Sept. 20, 1921).—Two difficulties are encountered in the usual titration of available chlorine in bleaching powder: (1) Unless conditions are right some chlorate is likely to be reduced and counted as hypochlorite; (2) Some chlorate may be formed from hypochlorite during analysis. It was found possible to avoid these difficulties by electrometric titration. As comparison electrode an 8 cm. long glass tube was taken, the end of which was drawn out into a capillary and turned upward. The end of the capillary was stoppered with filter paper or with a bit of gelatin containing potassium sulphate. The tube was filled with potassium sulphate solution to which a little titrated hypochlorite solution was added. As electrodes, two bright platinum wires were used one of which was placed in the hypochlorite solution and the other in the comparison electrode. The two electrodes were connected through a millivoltmeter with high resistance or through a galvanometer with suitable ballast resistance. The end point was shown by a sudden drop of the galvanometer to 0. Excellent results were obtained electrometrically by the Penot method of titrating hypochlorites with arsenite solution containing an excess of sodium bicarbonate, and by the Pontius method of titrating in alkaline solution with potassium iodide solution.—A. P.-C.

Paper Manufacturing and Equipment

Admission of Steam to Dryers.—*Paper*, xxx, No. 7, 124-125 (April 19, 1922).—In order to have proper working of the dryers we must have a device that will (1) close against steam, (2) open for water, (3) open for air, (4) pass grease and scale. Devices for doing this may be listed as follows: (1) straight blow through with only a throttle valve on the outlet of the dryer; (2) open passage into a general header which is provided with a trap of some kind to maintain a back pressure; (3) a header divided so that part of the dryers have open connection thereto, their exhaust being turned into another group of dryers fitted with a large trap; (4) individual trap or water leg for each dryer; (5) same as (4) with the addition of a vacuum pump to insure removal of air. The author briefly discusses the merits of each of these arrangements, and concludes that a system such as (5), if rightly installed, would assuredly pay large dividends in steam savings.—A. P.-C.

Waterproofing of Paper.—E. Jentzsch. *Deut. Farber-Ztg.*, lvii, 587-588 (1921); *Chem. Abs.*, xv, 3745 (Nov. 10, 1921).—The paper is passed twice through a bath of aluminum formate of 3 to 5° Beaumé, then well dried. In place of the usual soap bath with paraffin added, the goods are put through a lime bath of 50 to 75 grams per liter at a temperature of 45 to 50° C. Two passages are given on the foulard, taking care to have no folds or wrinkles in the goods before calendering.—A. P.-C.

Power Generating and Equipment

An Electric Steam Generator for Low Voltage.—F. A. Lidbury and F. A. Stamps *Trans. Am. Electrochem. Soc.* xi, (advance copy) (9122); *Chem. Abs.*, xvi, 25 (Jan. 10, 1922).—To provide steam for an electric power consuming establishment which either makes or purchases blocks of firm hydro-electric power it is sometimes desirable to have some simple and practical method of converting this electric energy into steam. Such an installation must be of low first and maintenance cost. A description of an apparatus built up of several concentric pipes, operating on the water resistance principle, and designed for alternating current at 100 to 500 volts, is given. Such a unit can be built for less than $500, occupies very little space (12 inches diameter), requires no special foundation, and is semi-portable. At the rated load of 250 kilowatt, nearly 700 pounds of steam per hour (25 boiler horse power) are produced from unheated feed water. It has been in operation over 6 months and requires little more than half an hour of attention daily, and probably not that much if equipped with simple automatic regulation.—A. P.-C.

General

Waterpower in the Pulp and Paper Industry in Canada.—*Paper*, xxx, No. 7, 12-18 April 19, 1922); *Pulp and Paper*, xx, 383-386, 407-411 (May 11 and 18, 1922).—A detailed analysis of the consumption of hydraulic power in the pulp and paper industry in Canada, taken from a manuscript prepared by the Dominion Water Power Branch, Dept. of the Interior, Canada.—A. P.-C.

Training Undergraduates in Industrial Relations.—Dexter S. Kimball, Dean, College of Engineering, Cornell Univ. *Chem. Met. Eng.*, xxvi, 106-108 (Jan. 18, 1922).—The engineering school curriculum should contain courses in the principles of industrial organization, cost finding, wage system, and the general economics of industry. The study of human relations is important to enable the student to help in building a better industrial world.—A. P.-C.

List of Abbreviated and Full Titles and of Addresses of the Journals from Which Abstracts Have Been Prepared for this Issue

Chem. Abs.	Chemical Abstracts. Charles L. Parsons, 1709 G St., N. W., Washington, D. C.
Chem. Met. Eng.	Chemical and Metallurgical Engineering. McGraw-Hill Co., Inc., Tenth Ave. at Thirty-sixth St., New York City.
Chem. Ztg.	Chemiker Zeitung. Walter Roth, Göthen, Germany.
Deut. Farber-Ztg.	Deutsche Farber-Zeitung. Wittenberg (Bez. Halle), Germany.
Helv. Chim. Acta	Helvetica Chimica Acta. Georg & Co., 10 Friestr., Basel, Corraterie 10, Genève, Switzerland.
J. Optical Soc. America	Journal of the Optical Society of America. Optical Society of America, Adolph Lomb, Treasurer, Rochester, N. Y.
J. Soc. Chem. Ind.	Journal of the Society of Chemical Industry, Central House, 46 and 47 Finsbury Square, London, E. C. 2, England.
Paper	Paper. 251 West Nineteenth St., New York City.
Paper Ind.	The Paper Industry. 356 Monadnock Block, Chicago, Ill.
Paper Trade J.	Paper Trade Journal. 10 East Thirty-ninth St., New York City.
Pulp and Paper	Pulp and Paper Magazine of Canada. Gardenvale, Que., Canada.
Rev. Gén. Mat. Col.	Revue Générale des Matières Colorantes, de la Teinture, de l'Impression et des Apprêts. 123 Rue de Rennes, Paris (6°), France.
Staz. Sper. Agrar. Ital.	Le Stazioni sperimentali Agrarie Italiane. Dr. G. LoPriore, R. Stazione Agraria di Modena. Italy.
Svensk Pappers-Tid.	Svensk Pappers Tidning. Svenska Pappersbruksföreningen, Hovslagaregatan 3, Stockholm, Sweden.
Trans. Am. Electrochem. Soc.	Transactions of the American Electrochemical Society. Jos. W. Richards, South Bethlehem, Pa.

Has Not Approved Paper Milk Containers

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 19, 1922.—A number of inquiries have recently been received by the Department of Agriculture to the effect that the Government has approved a new kind of milk container made of paper. The statement says that so far as the Department of Agriculture is concerned, no statement either of approval or disapproval has been made regarding any specific type of milk container, from either the sanitary or the economic standpoint.

XUM

Fourdrinier Wire Tension

By JOHN KEPKE, JR.

The running tension of a Fourdrinier wire in service, although of some importance in the operation of the machine, is largely gauged by trial and experience; and there is seldom any idea of the actual tension in pounds. If automatic wire tighteners were used analogous to the automatic felt tighteners in general use in dryer sections, a closer control of wire tension would be had and this tension would always be definitely known.

From available data it appears that the normal operating tension varies between 6 and 10 pounds per inch of width of wire, with a maximum probably well under 20 pounds. However, the tightening devices in common use leave the machine tender free to increase this at will, limited only by the strength of the wire; and in extreme cases very high tensions may be applied for short periods.

In calculating bearing loads on the various rolls in a Fourdrinier part the effective wire tension is of prime importance; and it must be assumed that occasionally the wire may be stretched to its elastic limit.

In order to determine the elastic limit and other physical properties of wire, samples were obtained through the kindness of wire manufacturers, and were tested in a tensile testing machine for elastic limit, ultimate breaking stress and elongation. Samples of approximately 60 mesh and of approximately 70 mesh were tested.

Short specimens 3″ wide were first used. These gave breaking loads of 133 to 141 pounds per inch of width for 60 mesh wire, and from 113 to 125 pounds for 70 mesh, with elongation at rupture of about 20 per cent for 60 mesh, and an average of about 17 per cent for 70 mesh. However, it was found that the elastic limit, which was the figure most desired, was too uncertain to be determined by the short specimens used. A slight permanent set developed at rather low loads; and, as nearly as could be determined, the curve of permanent set plotted against applied loads, would be quite smooth.

So specimens over 20″ long and 1″ in width were tested, primarily to fix as closely as possible the point at which a permanent set became very evident. This was still rather elusive and could not be definitely determined; but it was fairly clearly shown to lie between 30 and 45 pounds per inch of width for both 60 mesh and 70 mesh wire—the figure for the finer wire being probably higher than for the coarser.

From this it appears to be necessary to assume about 40 pounds wire tension per inch of width in calculating the pull of wire on breast rolls, bottom couch rols, and wire carrying rolls, and in determining the resulting loads on bearings; although normally the running tension may be expected to be much lower.—*S. K. F. Industries,* New York.

The New Chemist

Too many graduates in chemistry leave school today with a fatal misconception of the mental state of industrial leaders, says John Arthur Wilson in the *Journal of Industrial and Engineering Chemistry*. They get to look upon industries such as ours as living in the dark ages and developing by rule of thumb or haphazard methods, while, with their training in chemistry, they hold a sort of Aladdin's lamp capable of revolutionizing the industry. Allowing such a false notion to grip the mind of a student is probably one of the worst crimes of modern systems of education, for the result, so far as the student's career is concerned, is often fatal.

The great success of a certain class of tanners, for example, has been due to the development of a science of leather manufacture, as distinct from the art, based upon a belief in the constancy of natural laws and involving the organization and classification of countless facts gained by experience or handed down from previous generations. This science, because of its high degree of specialization, has proved more powerful in a practical way than chemistry, so much so that chemistry must still be regarded as of value primarily in supplementing and not replacing the science of the tanner. Disillusionment has been common among chemists entering this industry, as the result of the unexpected intricacy of the application of chemistry to leather manufacture, of insufficient training, of false notions of superiority over artisans who had devoted their lives to the industry, or of failure to appreciate that the tanner's own science is usually far more reliable than the chemistry of a beginner in the industry.

In order to make substantial progress, the chemist must, as a rule, devote himself completely to a study and explanation of the mechanism of each step of a successful process without in any way interfering with the process. Once available, sound explanations of the mechanism of existing processes are of incalculable value in suggesting practical experiments leading to the elimination of unnecessary operations and to the improvement and development of others. That this procedure has not been more widely adopted is easily explained. Long and costly studies are required for which there is no immediate return, and whether there will ever be a return commensurate with the cost of the studies must depend upon the skill of the chemist, which it is difficult to judge. Moreover, the qualifications required of the chemist are extremely severe. He must have a broad theoretical training, marked ability to advance the pure science and great skill in adapting delicate apparatus to crude conditions. On the other hand, previous contact with the industry is quite unnecessary.

I presume this must be true for most complex industries. What is the use of trying to sell chemistry to industry unless employer and chemist understand each other, and that their task is purely a co-operative one, and hopeless unless the chemist is a real chemist of a high order? When the university and industry really begin to understand each other's needs, potentialities and limits, they are bound to co-operate more extensively and to their mutual benefit.

A Paper Mill of 100 Years Ago at Richmond

RICHMOND, Va., July 17, 1922.

PAPER TRADE JOURNAL:

I hand you herewith a clipping from the *Richmond News Leader*, from its column "Richmond In By-Gone Days."

This item in reference to a paper mill of 100 years ago will probably prove of interest to some of the historians of the paper trade.

Yours very truly,
The R. A. Cauthorne Paper Co.,
H. J. WALSH,
Manager of Sales.

The clipping referred to by Mr. Walsh follows:

100 YEARS AGO (1822)

"Under a decree of the superior court of chancery of the Richmond district, J. Guerrant, M. S. C. R. D., will on Monday, Aug. 26, offer for lease for a term not less than three nor more than five years the paper mills on Powhite creek, in Chesterfield county. All repairs which I (Mr. Guerrant) may deem necessary will be deducted from the rents. The amount of repairs, it is presumed, will not ecxeed $500. This mill is a two-vat mill, equipt in the most complete order with pipes of fresh clean water to wash the stuff in with a duster worked by machinery, with two sets of screws of the best construction and sizing furnace, and boiler, and the necessary fixtures to make writing paper. The dyeing loft is fixed in the best style. All necessary houses and fuel are on the spot. The mills are about three miles from Richmond and within one mile and a quarter of the James river."

[Powhite creek, in Chesterfield, follows roughly the course of the Richmond and Danville railroad east of Bon Air and empties into the James about half a mile above the Belt Line bridge. The stream must not be confused with Powhite creek, in Hanover, mentioned in many reports of the battle of Gaines' mill.]

XUM

ESTABLISHED 1828 SOUTH WINDHAM, CONN.

THE SMITH & WINCHESTER MFG. CO.

MANUFACTURERS OF

PAPER BAG MAKING MACHINERY

AS ILLUSTRATED AND DESCRIBED IN BULLETIN NO. 10

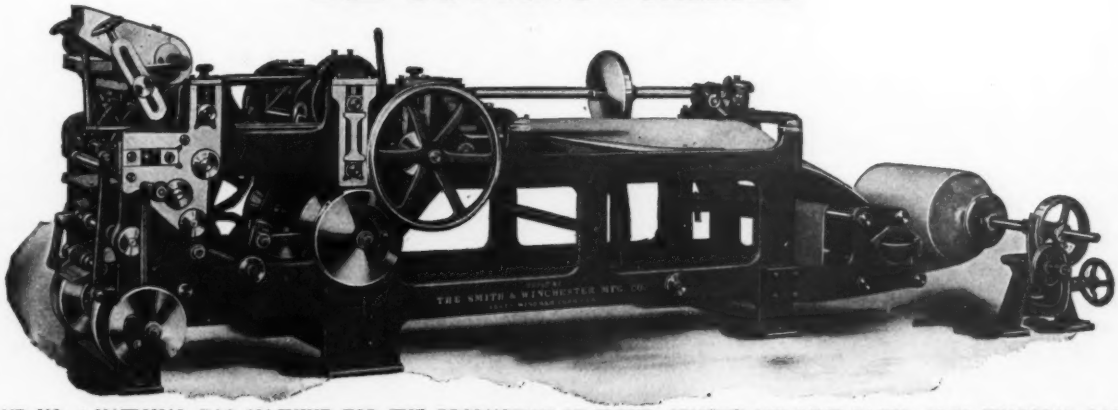
PAPER MAKING—PAPER CUTTING MACHINERY

FOURDRINIER—CYLINDER—WET MACHINES

JORDAN ENGINES—PUMPS—CALENDERS—REELS—CUTTERS—WINDERS—ROLLS

THE RAINSTORM SHOWER PIPE—COLLAPSIBLE CORES

DIE CUTTING PRESSES



OUR NO. 4 NATIONAL BAG MACHINE FOR THE PRODUCTION OF FLOUR, CEMENT AND LIME SACKS; ALSO CHARCOAL BAGS

THE REPUBLIC RUBBER CO. YOUNGSTOWN-OHIO

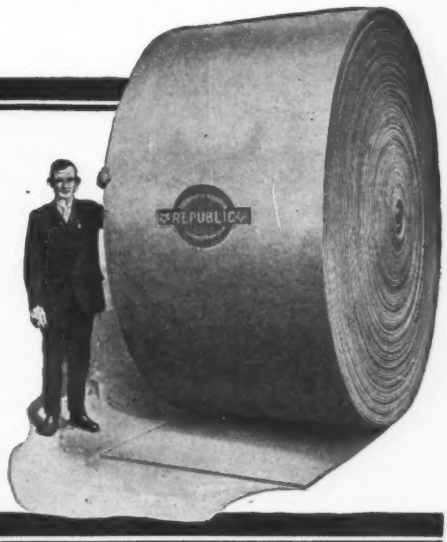
A Standard Never Lowered

The first Republic Belt ever used, established a high reputation. Each succeeding belt—conveyor or power transmission—has upheld and will continue to uphold it.

The records of Republic belts in service have proved the soundness of this policy of maintaining quality. You can rely on it—now and always.

Let us serve you

THE REPUBLIC RUBBER COMPANY
Youngstown, Ohio



REPUBLIC BELTING

PAPER DEMAND IN CHICAGO IS CONSTANTLY EXPANDING

Fine Paper Houses Especially Are Optimistic—Most of Them are Doing a Fairly Good Business and Feel Confident That as the Summer Advances Buying Will Become More Active—Opinions are Freely Expressed That Higher Prices for Paper Will Prevail Before Long—National Paper Box Manufacturers Association To Start Campaign To Increase Use of Paper Boxes.

[FROM OUR REGULAR CORRESPONDENT.]

CHICAGO, July 17, 1922.—Buying of paper has continued to hold fairly good with some signs of a future better movement said to be creeping in now and then. Among the fine paper houses there is a strong optimistic feeling in evidence. Most of these houses state that they are doing a fairly good business and they feel certain that as the summer grows older buying of these lines will show more strength and animation.

In most every line there is a much better feeling being shown. Most of the jobbers are doing what they term a "pretty good business" just now, and it is declared that business has shown no letdown from the trend in June which was for many of them an improvement over May.

In talking over the situation with one mill representative here last week, a representative of the PAPER TRADE JOURNAL was informed that the entire trade here was looking forward to big buying developments within the next few weeks. A better buying trend is looked for early in September when it is expected a general business revival will begin to take place and all lines of industry will show signs of picking up. This member of the trade stated that even now for some lines and grades demand was beginning to show an improvement, but that as yet little future buying was being done. But he had little doubt that as soon as general conditions showed improvement the habit of future buying would return.

"Things are going along pretty good," said O. H. Runyan, sales manager of the firm of the Whitaker Paper Company. "June showed a little pick-up, and July seems to be running about the same."

To Stimulate Demand for Paper Boxes

A drive is being started by the National Paper Box Manufacturers' Association to increase the demand for paper boxes. Chicago associate members of this organization have received announcements of the drive from the secretary's offices in Philadelphia which in part states: "An increase in demand for paper boxes will of course improve your business. Associate members can help stimulate this demand by requesting their employees to demand a paper box with every purchase."

The plan of the organization is to furnish a set of three pay envelope enclosures which are in the form of preparation and which point out the value of the paper box to the industry of the paper box supply trade. It is suggested that one of these enclosures be put in the pay envelopes of the firm for three successive weeks for the purpose of increasing the demand for paper boxes.

Believe Paper Prices Will Be Higher

There is a strong feeling here that stiffer prices will develop within a very short time in the paper circles. All grades are predicted to be ready to make an ascent to higher levels. While few of the trade here will talk on the subject just now for publication, they are all of the opinion that the higher levels will materialize and none of them feel that it will have a bad effect on the buying end of the business. In the board field, these advances have already been made to some extent, and that board will go still higher is the opinion of some members of that branch of the industry.

General News of the Trade

L. Thomson, secretary and treasurer, of Champion Coated Paper Company, is spending his vacation in the vicinity of Carlevoix, Michigan. He intends to spend several weeks in the great out-of-doors and come back to Chicago and business full of pep, and ready to tackle a year of big business.

Alex. Thomson, vice-president of the Champion Coated Paper Company, is enjoying a month's vacation at Harbor Springs, Michigan. Mr. Thomson and family report they are encountering wonderful Michigan weather and hope their vacation is not over too soon.

Harry Rowley, of the Chicago Paper Company, left July 15, to spend a month's vacation at Paw Paw Lake, Michigan.

S. D. Warren, paper products manufacturers of Boston, conduct a sales campaign for their different branch houses, once every year. The two salesmen of each branch house selling the most Warren goods receive a trip to Boston and are welcomed visitors at the Warren Camp near Boston, where the Warren company conducts a trading school.

Joe Rowley and Harry Fick, salesmen of the Chicago Paper Company, were the two successful salesmen selling the most Warren goods in this territory. They have left for Boston to attend the camp where the training school will be in session, Thursday, Friday, Saturday, July 20 to 22.

W. C. Gilette, president of the Chicago Paper Company, has just returned from a vacation trip through the state of Wyoming.

The Seaman Paper Company has been conducting a contest on "Brocade Cover," in the Chicago and Milwaukee territory. The contest will terminate August 4, and prizes will be awarded at a meeting to be held at the Illinois Athletic Club.

A contest of the same kind will also be held in the St. Louis and Minneapolis territory as soon as the contest in Chicago has ended.

The Seaman Paper Company has opened a new office at Nashville, Tennessee, in the Stahlmann building, room number 604. R. F. Couterie has been recently made manager of this new branch office.

F. Whitelaw has just taken over the managership of the Kansas City branch of the Seaman Paper Company.

Most all paper men have about the same story to tell when asked about the business this fall. Nearly all of them are taking their vacations early this year with the idea of a big business this coming fall. The trend of business at this time shows that within a month or two business will be what the paper men have been patiently waiting for and back to former times.

A sales campaign to introduce a sales producer is about to be conducted by the Seaman Paper Company to present a new bond paper offering half tones and color work desirable for four page letters.

Gardner & Harvey Co. to Use K-B. Process

MIDDLETOWN, Ohio, July 17, 1922.—The Gardner & Harvey Company, manufacturer of patent coated boards, paper box boards, blanks and specialties, has taken out a license for the exclusive use of the "K-B" waterproofing process, belonging to the Flintkote Company, Boston, Mass., for all grades of box board.

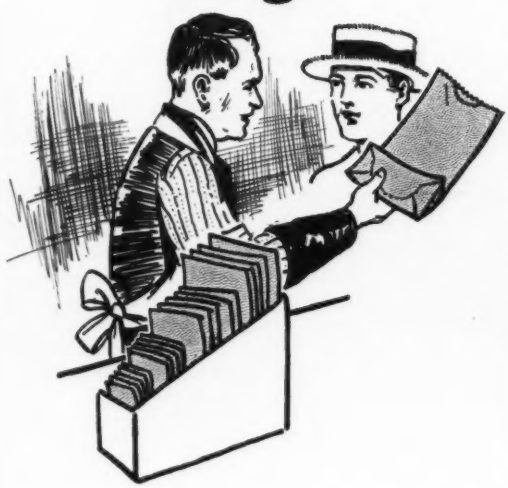
The "K-B" process is a patented process whereby box board is manufactured with an asphalt liner on the inside of the paper board machine in one operation. This process makes the board absolutely moisture proof and water proof.

This asphalt liner also adds considerable strength and folding qualities to the board.

The Gardner & Harvey Company has under construction a very large building, which is to be used for the manufacture and storage of this asphalt lined board, and will be in shape to accept orders for the manufacture of this board under the K-B process for delivery within thirty to sixty days.

XUM

The Very Bag



The *Lawrence* is the very bag your distributor wants. Its strength and uniformity commend it to him and his trade.

LAWRENCE GROCERS' BAGS

And don't forget that by concentrating on this one dependable, standardized line, you avoid tying up unnecessary capital and loading your warehouse with a number of brands.

James Lawrence, President

THE LAWRENCE BAG COMPANY
MIAMISBURG, OHIO

THE SHEPARD ELECTRIC LIFTABOUT

Ease, speed, true economy —in the *LiftAbout*

THIS new small, but powerful, electric hoist, has displaced many old fashioned and expensive ways for moving loads. For many mills the long standing question of the *best way to rehandle at the lowest cost* has been solved.

The *LiftAbout*, illustrated, is one of several that are cutting costs for a parchment paper company in New Jersey.

Write for descriptive bulletin

SHEPARD ELECTRIC CRANE & HOIST CO.
378 Schuyler Ave., Montour Falls, N. Y.
Branches in Principal Cities
Member Electric Hoist Mfrs.' Assn. 2282-S

SHEPARD ELECTRIC CRANES & HOISTS

Imports and Exports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JULY 14, 1922

News Print.....2,116 rolls.
Wrapping.....1,024 bls. 5,011 rolls
Packing Paper.....2,276 rolls.
Cigarette Papers.....40 bdls. 2,033 cs.
Printing Paper.....16 cs.
Surface Coated Paper.....153
Photo Paper.....41 cs.
Wall Paper.....10 bls., 2,238 rolls.
Kraft.....80 bls.
Paper Hanging.....3 bls.
Sand Paper.....78 cs.
Parchment Paper.....13 rolls, 21 cs.
Colored Paper.....10 cs.
Miscellaneous Paper....111 cs., 7,599 rolls, 823 bls.

CIGARETTE PAPER.

British American Tobacco Co., Cedric, Liverpool, 33 cs.
British American Tobacco Co., Scythia, Liverpool, 13 cs.
American Tobacco Co., Zarembo, Bordeaux, 1,684 cs.
De Mauduit Paper Corp, Zarembo, St. Nazaire, 101 cs.
Hard & Ritter, M. Calvo, Barcelona, 40 bdls.
Wilkinson Bros. & Co., Inc., La Savoie, Havre, 2 cs.

WRAPPING PAPER.

Wilkinson Bros. & Co., Inc., Ind. Hall, Rotterdam, 12 bls.
Wilkinson Bros. & Co., Inc., Bergensfjord, Kristiana, 326 bls.
Wilkinson Bros. & Co., Inc., by same, 50 rolls.
S. Safier, Inc., by same, 448 rolls.
S. Safier, Inc., by same, 25 bls.
E. C. Melby, H. Olav, Copenhagen, 72 bls.
E. C. Melby, by same, 105 rolls.
Equitable Trust Co., by same, 88 rolls.
Equitable Trust Co., by same, 177 bls.
Steiner Paper Corp., Mt. Carroll, Hamburg, 23 cs.
State Bank, by same, 4,428 rolls.
M. O'Meara, Gustavsholm, Gothenburg, 402 bls.
Blauvelt-Wiley Paper Mfg. Co., by same, 10 bls.

KRAFT.

Hudson Trading Co., Gustavsholm, Gothenburg, 80 bls.

PACKING PAPER.

Wilkinson Bros. & Co., Inc., Bergensfjord, Kristiana, 870 rolls.
Birn & Wachenheim, Rotterdam, Rotterdam, 28 rolls.
Republic Bag & Paper Co., Schoharie, Hamburg, 971 rolls.
Ladenburg, Thalman & Co., by same, 397 rolls.

NEWS PRINT.

New York American, Honolulu, Hallstavik, 2,116 rolls.

PRINTING PAPER.

B. F. Drakenfeld & Co., Scythia, Liverpool, 16 cs.

SURFACE COATED PAPER.

P. C. Zuhlke, Kroonland, Antwerp, 88 cs.
P. C. Zuhlke, Lapland, Antwerp, 65 cs.

PHOTO PAPER.

Genaert Co. of America, Lapland, Antwerp, 21 cs.
Genaert Co. of America, Groonland, Antwerp, 20 cs.

WALL PAPER.

F. G. Prager Co., Kroonland, Antwerp, 75 rolls.
F. G. Prager Co., Lapland, Antwerp, 1,453 rolls.
A. Murphy & Co., Mt. Carroll, Hamburg, 10 bls.

PAPER HANGINGS.

American Express Co., Pr. Fillmore, Bremen, 3 bls.

FILTER PAPER.

R. N. Delapenha, Asia, Marseilles, 3 bls.

SAND PEPER.

Havana Trading Co., Zarembo, St. Nazaire, 78 cs.

PARCHMENT PAPER.

Irving Nat'l Bank, Lapland, Antwerp, 5 rolls.
Irving Nat'l Bank, by same, 6 cs.
Irving Nat'l Bank, Kroonland, Antwerp, 15 cs.
Irving Nat'l Bank, by same, 8 rolls.

COLORED PAPER.

P. C. Zahlke, Mt. Carroll, Hamburg, 10 cs.

PAPER.

Herman Lips, Asia, Marseilles, 50 cs.
Chauson & Montgolfier, by same, 33 cs.
Birn & Wachenheim, Chicago, Havre, 8 cs.
C. H. Morehouse, by same, 7 cs.
Irving Nat'l Bank, Pr. Fillmore, Bremen, 349 rolls.
J. Byrne, by same, 56 bls.
Nat'l City Bank, Schoharie, Hamburg, 119 rolls.
C. L. Robinson, by same, 210 rolls.
Republic Bag & Paper Co., Honolulu, Hernosand, 523 rolls.
Becker Paper Corp., by same, 234 bls.
Merchants Products Corp., Honolulu, Gothenburg, 260 bls.
Whiting & Patterson, La Savoie, Havre, 5 cs.
Republic Bag & Paper Co., Gustavsholm, Gothenburg, 32 rolls.
Hudson Trading Co., by same, 106 rolls.
Hudson Trading Co., by same, 5 bls.
Hern Com'l Co., by same, 126 rolls.
Great Notch Paper Co., Inc., by same, 39 rolls.
D. S. Walton & Co., by same, 206 rolls.
D. S. Walton & Co., by same, 31 bls.
M. O'Meara Co., by same, 151 rolls.
A. E. MacAdam & Co., by same, 40 bls.
A. E. MacAdam & Co., by same, 1,280 rolls.
Wm. Schall & Co., by same, 2,050 rolls.
E. C. Melby, by same, 180 rolls.
E. C. Melby, by same, 69 rolls.
Arkell Safety Bag Co., by same, 580 rolls.
Foreign Paper Mills, Inc., by same, 76 rolls.
Foreign Paper Mills, Inc., by same, 128 rolls.
Japan Paper Co., by same, 13 cs.
Parsons & Whittemore, Hannover, Bremen, 1,572 rolls.

RAGS, BAGGING, ETC.

Katzenstein & Keene, Inc., Noordam, Rotterdam, 880 bls. bagging.
E. Butterworth & Co., Inc., Cedric, Liverpool, 111 bls. bagging.
Brown Bros. & Co., by same, 27 bls. thread waste.
Equitable Trust Co., Algeria, Glasgow, 43 bls. waste paper.
E. J. Keller Co., Inc., by same, 21 bls. thread waste.
E. J. Keller Co., Inc., H. Olav, Copenhagen, 328 bls. rags.
E. J. Keller Co., Inc., Mt. Carroll, Hamburg, 44 bls. rags.
Castle, Gottheil & Overton, by same, 92 bls. rags.
American Wood Pulp Co., by same, 20 bls. rags.
Goldman, Sachs & Co., by same, 123 bls. rags.
G. Mathes & Co., La Savoie, Havre, 48 bls. rags.
E. J. Keller Co., Inc., Pinemore, Dundee, 140 bls. flax waste.
E. J. Keller Co., Inc., by same, 44 bls. thread waste.
Castle, Gottheil & Overton, by same, 25 bls. thread waste.
American Express Co., Pinemore, Middlesboro, 58 bls. rags.
E. J. Keller Co., Inc., Hannover, Bremen, 175 bls. rags.
Chemical Nat'l Bank, by same, 207 bls. rags.
L. H. Abenheimer, Archimedes, Manchester, 133 bls. bagging.
Equitable Trust Co., by same, 148 bls. bagging.
Irving Nat'l Bank, by same, 100 bls. bagging.
Irving Nat'l Bank, by same, 161 bls. new cuttings.
M. O'Meara Co., by same, 25 bls. yarn waste.
E. Butterworth & Co., Inc., by same, 345 bls. bagging.
Ladenburg, Thalman & Co., Rotterdam, Rotterdam., 48 bls. rags.
W. Hughes & Co., by same, 84 bls cotton waste.
E. J. Keller Co., Inc., Seattle Spirit, Belfast, 698 bls. paper stock.
E. J. Keller Co., Inc., Chicago, Havre, 189 bls. bagging.
P. Berlowitz, by same, 544 bls. rags.
Brown Bros. & Co., by same, 515 bls. rags.
W. Schall & Co., by same, 489 bls. rags.
Burmon & Bolonsky, Scythia, Liverpool, 55 bls. rags.
Equitable Trust Co., Pr. Fillmore, Bremen, 840 bls. rags.
Irving Nat'l Bank, Lapland, Antwerp, 324 bls. flax waste.
Nat'l City Bank, Schoharie, Hamburg, 98 bls. rags.
Int'l Acceptance Bank, by same, 36 bls. rags.
L. H. Abenheimer, by same, 399 bls. rags.
Ladenburg, Thalman & Co., by same, 104 bls. rags.
Ladenburg, Thalman & Co., by same, 60 bls. flax waste.
Guaranty Trust Co., by same, 33 bls. rags.
Garfield Nat'l Bank, by same, 30 bls. rags.

OLD ROPE.

Ladenburg, Thalman & Co., Schoharie, Hamburg, 120 coils.
E. J. Keller Co., Inc., Mt. Carroll, Hamburg, 63 coils.
Brown Bros. & Co., Inc., Francisco, Hull, 27 bales, 280 coils.
Brown Bros. & Co., Inc., Rotterdam, Rotterdam, 79 coils.
Brown Bros. & Co., Inc., Zarembo, St. Nazaire, 54 pkgs.

CASEIN.

A. Klipstein & Co., Capulin, London, 266 bags, 43,982 lbs.
A. Klipstein & Co., Pres. Adams, London, 435 bags.

WOOD FLOUR.

B. L. Soberski, Bergensfjord, Kristiania, 2,989 bags, 203,252 kilos.

WOOD PULP.

Castle, Gottheil & Overton, Schoharie, Hamburg, 550 bls., 110 tons.
Nat'l Bank of Commerce, by same, 701 bls., 100 tons.
Brown Bros. & Co., by same, 1,367 bls., 188 tons.
Parsons & Whittemore, Imatra, Wiborg, 1,948 bales.
Bulkley, Dunton & Co., Santa Malta, Stugsund, 4,500 bales, 700 tons.
Bulkley, Dunton & Co., Santa Malta, Iggesund, 1,530 bales, 255 tons.
Wood Pulp Trading Co., Ltd., by same, 3,600 bales, 600 tons.
A. J. Pagel & Co., Inc., Santa Malta, Skutskar, 1,000 bales, 200 tons.
A. J. Pagel & Co., Inc., Santa Malta, Hornefors, 3,000 bales, 500 tons.
A. J. Pagel & Co., Inc., Santa Malta, Donisjo, 1,950 bales, 325 tons.
E. J. Keller Co., Inc., Bergensfjord, Kristiania, 300 bales, 50 tons.
J. Anderson & Co., by same, 600 bales, 101 tons.
American Wood Pulp Corp., Gustavsholm, Skutskar, 1,525 bales, 258 tons.
Scandinavian American Trading Co., by same, 1,125 bales, 227 tons.
Scandinavian American Trading Co., Gustavsholm, Gothenburg, 1,250 bales, 254 tons.
Seggerman Bros., by same, 500 bales, 101 tons.
Johanson, Wales & Sparre, Inc., by same, 2,207 bales, 441 tons.
Nat'l Bank of Commerce, Honolulu, Hernosand, 3,000 bales, 508 tons.
Scandinavian American Trading Co., by same, 600 bales, 101 tons.
Scandinavian American Trading Co., Honolulu, Gothenburg, 800 bales, 101 tons.
Mechanics & Metals Nat'l Bank, by same, 500 bales, 101 tons.
Equitable Trust Co., by same, 326 bales, 49 tons.

BALTIMORE IMPORTS

WEEK ENDING JULY 14, 1922

R. F. Hammond, Nornega, Gothenburg, 2,500 bls. wood pulp.
Nat'l City Bank, Honolulu, Hallstanik, 508 bls., 101 tons wood pulp.
Nat'l City Bank, Honolulu, Hernosand, 5,280 bls., 895 tons wood pulp.
Scandinavian American Trading Co., by same, 2,850 bales, 475 tons wood pulp.
Nat'l Bank of Commerce, by same, 3,000 bls., 508 tons wood pulp.
American Wood Pulp Corp., by same, 600 bls., 101 tons wood pulp.
Johanson, Wales & Sparre, Inc., by same, 2,400 bls., 405 tons wood pulp.
Mechanics & Metals Nat'l Bank, Honolulu, Gothenburg, 1,250 bls., 254 tons wood pulp.
A. J. Pagel & Co., Inc., Santa Malta, Donisjo, 4,800 bls., 800 tons wood pulp.
A. J. Pagel & Co., Inc., Santa Malta, Hornefors, 600 bls., 100 tons wool pulp.
American Wood Pulp Corp., Santa Malta, Ortviken, 575 bls., 115 tons. wood pulp.
Scandinavian American Trading Co., Santa Malta, Skutskar, 9,500 bls. 1,600 tons wood pulp.
Certainteed Products Co., Capulin, London, 246 bls. rags.
Hudson Trading Co., Bremerton, Gothenburg, 4,200 bls. wood pulp.

(*Continued on page 64*)

XUM

New York Office
280 Broadway

Chicago Office
1148 Otis Bldg.

Howard Bond

HOWARD BOND
Watermark Applied

Howard Ledger

"The Paper of Many Uses"

Manufactured by

THE HOWARD PAPER COMPANY, Urbana, Ohio

West Virginia Pulp and Paper Company

Manufacturers of

Supercalendered and Machine

Finished Book and Lithographic Papers

Offset, Envelope and Music Paper, High Grade Coated Book and Label Papers

also

Bleached Spruce Sulphite and Soda Pulp

200 Fifth Avenue
New York

732 Sherman Street
Chicago

"World's Model Paper Mill" KVP PRODUCTS Kalamazoo Vegetable Parchment Co. Kalamazoo, Michigan, U. S. A.

Yours for Bigger and Better Business

K·V·P

Genuine Vegetable Parchment
Pure White Waxed Paper
Bond—White and Six Colors
Manifold—Substance 8 and 10.

GREASEPROOF PARCHMENT PAPERS

OF STANDARD QUALITY

Purity
Quality Plus

Ashmere
Equally Fine

Berkshire
Stands the Test

OUR PAPERS ARE EXCELLENT FOR MEAT MARKETS, GROCERS AND GENERAL PACKING HOUSE REQUIREMENTS

Mountain Mill Paper Co.

(Write for Samples and Quotations)
MILLS AND GENERAL OFFICES
125 Forest Street, Lee, Mass.

XUM

New York Market Review

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, July 19, 1922.

With August less than two weeks away, both paper manufacturers and paper merchants have been devoting serious consideration to preparations for the long touted "rush of fall business." Not that the lassitude of the summer months has any more than got under way, but probably because several very threatening obstacles loom up as potential monkey-wrenches in the smooth running mechanism of capacity production in all lines, when it does arrive. These obstacles are none other than the shortage and impossible prices of coal and the rail tieup. The smaller mills, totally unprepared for any such exigency, have been severely harassed through this curtailment of fuel supplies. Especially is this true in regard to bogus wrapper and small tissue mills, which, in many cases, have been forced to pay up to 50 per cent more for this commodity. Government intervention will probably occur, however, in time to avert any dangerous crisis.

The week following the boost in the price of news print paper from $70 to $75 per ton has been marked by a continuance of the remarkable strides which the industry has taken in the past few months. In a bulletin dated July 14, the News Print Service Bureau states that the first six months of the present year showed an increase of 88,209 tons or 17 per cent over last year for mills in the U. S. and a 26 per cent increase for both U. S. and Canadian mills. From all appearances this phenomenal production and corresponding consumption will continue straight through the year. Mills are running full blast even now, in mid-summer, whereas in previous years this has been one of the most quiet periods in the news print industry.

Book paper is beginning to feel the effects of summer, the movement into consuming channels being rather sluggish. The chief point for optimism, however, is that jobbers and retailers have allowed their stocks to deplete to a very low ebb, and it is fully expected that with the coming of fall business, the repleneshing of these stocks will bring about a resumption of normal business. Printing is still too high and competition between manufacturers continues to be of a harmful character in many instances.

Both export and domestic demands for fine paper are in a rather ragged condition at the present time, although a certain amount of business is still coming through in sporadic amounts. Although business cannot by any means be characterized as brisk, the general outlook of conditions in the fine paper market is much brighter than it was several months ago, despite the menacing coal and rail strikes.

The last week has seen a real enlivening in the tissue situation. Increased demand from the textile industries as well as the shoe industry, combined with the closing down of several important tissue mills have put the strain of the increased demand on those remaining. Prices are conceded to be firm and any alterations may be expected to have an upward trend. Merchants attempting to fill in depleted stocks are having difficulty in securing contracts for future shipment at existing prices as a rise in the near future is anticipated by many large dealers.

Manufacturers of kraft wrappings are enjoying a goodly volume of business coincident with the reentering of many buyers into the market. Several large orders were recorded and the general tone of the market has firmed considerably over the preceding few weeks. It is believed that both the rail and coal strikes have played their part in inducing buyers to contract at this time.

General stiffening in the price of paper stock has been given as the reason for the sudden enhancing in prices in the board market. Boxboard was in excellent demand last week and many good sized orders were signed up. Several board manufacturers reported that they were now paying approximately 50 per cent more for coal than they did prior to the strike, and this has had its effect in boosting the prices of nearly all grades of board from $3 to $5 per ton.

Mechanical Pulp

With mills contracting for groundwood in regular quantities, and the available supplies on hand running low, it is expected that the next few weeks will bring a price increase in this market. News print mills as well as board mills have participated actively in this market to insure themselves of having adequate supplies to meet the strong demand in each of these industries, and these buyers are not reluctant to contract for some months in advance. A recent issue of the Swedish periodical, *Afferscarlden* states that there has been a better demand for dry groundwood pulp during the last few weeks, quotations remaining firm and unchanged, while the *Farmand* of Norway states that the market for mechanical pulp is showing decided improvement with increasing exports.

Chemical Pulp

Buying in the chemical pulp market during the last few weeks has been carried on to meet current demands rather than to lay aside quantities for the balance of the year's business. Practically every item in the market is exhibiting a better tone, however, and considerable quantities of bleached sulphite are being turned over by dealers. According to the *Pappers-Och Travarutidskrift*, of Finland, conditions are somewhat calmer in the chemical pulp market after the tremendous activity of the preceding months. Finnish mills are supplied with orders for at least another two months and a rise in the market is expected.

Old Rope and Bagging

Rope is still strong and bagging is in fair demand. The extreme scarcity of many grades of old rope has resulted in an even further strengthening in the tone of the market during the past week. Collections of rope consist of small sized odd lots, and the poor shipping facilities at present serves to retard transactions even on these amounts. Mixed strings and manila rope, No. 1 domestic, increased slightly in price last week.

Waste Paper

Waste paper continues firm with the lower grades showing a decidedly better feeling over last week. Prices are stiffening all along the line and there is a real competition among buyers to secure any quantity of the better grades. These continued advances in price have had their effect on other industries, such as paper box board. Manufacturers of the latter predict that price boosts in their industry will keep pace with the stiffening in the waste paper industry. The fact, however, that many grades of waste paper have attained a cost which nearly approximates that of soda pulp, should prove a stabilizing influence.

Rags

Roofing and white rags are in good demand and a sound undertone continues to prevail in nearly every grade. The finer grades of rags are becoming so scarce that they are hardly a factor in the market any more, and the cheaper grades of roofing are coming to the fore. Writing paper manufacturers have eased up in their demands on this market in the last week or two, probably due to the usual summer depression, but the entire rag situation still has an excellent tone and price changes are expected to be in an upward direction when they arrive.

Twine

Although the twine market is still in more or less of a passive condition in point of demand, several individual dealers have seen fit to announce an increase in twine prices in anticipation of the general rise on the commodity which, it is expected, will surely follow proportionately with the raw material advances. In spite of the comparatively dull condition of business at the present time, dealers are optimistic for the fall outlook and feel that there has been a decided improvement in conditions already.

XUM

Market Quotations

Paper Company Securities

New York Exchange closing quotations July 18, 1922:

STOCKS	BID.	ASKED.
American Writing Paper Company, pref.	32	33
International Paper Company, com.	53¾	54
International Paper Company, pref., stamped.	71	71½
Union Bag & Paper Corporation.	61	63

Paper

F. o. b. Mill.

Ledgers	10.50	@30.00
Bonds	8.50	@55.00
Writings—		
Extra Superfine	14	@ 25
Superfine	13	@ 20
Tub Sized	10	@ 16
Engine Sized	9.00	@15.00
News—f. o. b. Mill—		
Rolls, contract	3.50	@ 3.75
Rolls, transit	3.75	@ 4.00
Sheets	4.00	@
Side Runs	3.25	@ 3.50
Book, Cased—f. o. b. Mill		
S. & S. C.	7.50	@ 9.00
M. F.	6.00	@ 7.50
Coated and Enamel	8.75	@15.00
Lithograph	9.00	@11.00
Tissues—f. o. b. Mill		
White, No. 1	.75	@ .80
Colored	1.00	@ 2.00
Anti-Tarnish	.75	@ .80
Silver Tissue	1.50	@ 2.70
Manila	.75	@ .80
Kraft—f. o. b. Mill—		
No. 1 Domestic	7.00	@ 7.50
No. 2 Domestic	5.75	@ 6.25
Imported	6.00	@ 6.25
Screenings	2.50	@ 3.50
Manila—		
No. 1 Jute	8.50	@ 9.00
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.50	@ 5.50
No. 2 Wood	4.00	@ 4.50
Butchers	4.25	@ 4.75
Fiber Papers—		
No. 1 Fiber	6.00	@ 6.25
No. 2 Fiber	5.00	@ 5.25
Common Bogus	1.75	@ 2.25
Card Middies	4.00	@ 5.00
Boards—per ton—		
News	40.00	@45.00
Straw	40.00	@45.00
Chip	37.50	@42.50
Binders' Board	60.00	@70.00
Sgl. Mla. Ll.Chip.	52.50	@62.50
Wood Pulp	75.00	@90.00
Container	60.00	@70.00
Wax Paper—		
Self Sealing White 28 and 30 lb. basis	10.00	@11.00
Waxed Tissue	1.40	@ 1.60
Glassine—		
Bleached, basis 25 lbs.	12.75	@13.25
Bleached, basis 20 lbs.	13.75	@15.25

Mechanical Pulp

(Ex-Dock.)

No. 1 Imported	32.00	@38.00
(F. o. b. Pulp Mills.)		
No. 1 Domestic	28.00	@34.00

Chemical Pulp

(Ex-Dock, Atlantic Ports.)

Sulphite (Imported)—		
Bleached	4.30	@ 4.50
Easy Bleaching	2.85	@ 3.10
No. 1 strong unbleached	2.50	@ 2.75
No. 2 Strong unbleached	2.25	@ 2.50
No. 1 Kraft	2.50	@ 3.00
Sulphate—		
Bleached	3.90	@ 4.00
(F. o. b. Pulp Mill.)		
Sulphite (Domestic)—		
Bleached	4.00	@ 4.50
Strong unbl'chd.	2.60	@ 2.80
Easy Bleaching Sulphite	2.60	@ 3.10
News Sulphite	2.50	@ 2.80
Mitscherlich	2.80	@ 3.10
Kraft (Domestic)	2.50	@ 3.00
Soda Bleached	3.50	@ 3.75

Domestic Rags

New

Prices to Mill, f. o. b. N. Y.

Shirt Cuttings—		
New White, No. 1	10.30	@11.00
New White, No. 2	6.50	@ 7.00
Silesias, No. 1	6.00	@ 6.50
New Unbleached	8.50	@ 9.00
Washables	4.00	@ 4.25
Fancy	5.00	@ 5.50
Cotton—according to Grades—		
Blue Overall	5.50	@ 6.00
New Blue	4.25	@ 4.75
New Black Soft	3.00	@ 3.25
New Light Seconds	2.75	@ 3.00
O. D. Khaki Cuttings	3.25	@ 3.60
Men's Corduroy	2.50	@ 2.75
New Canvas	6.50	@ 7.00
New Black Mixed Old	2.25	@ 2.75
White, No. 1—		
Repacked	5.60	@ 6.10
Miscellaneous	4.50	@ 5.00
White, No. 2—		
Repacked	2.75	@ 3.00
Miscellaneous	2.10	@ 2.35
St. Soiled White	1.15	@ 1.25
Thirds and Blues—		
Repacked	1.60	@ 1.75
Miscellaneous	1.15	@ 1.25
Black stockings	2.25	@ 2.50
Rooting Rags—		
Cloth Strippings	1.15	@ 1.20
No. 1	1.15	@ 1.20
No. 2	1.10	@ 1.15
No. 3	.75	@ .80
No. 4	.75	@ .80
No. 5A	.90	nominal

Foreign Rags

New Light Silesias	6.00	nominal
Light Flannelettes	6.75	nominal
Unbl'chd Cottons	7.50	nominal
New White Cuttings	9.50	nominal
New Light Oxfords	6.00	nominal
New Light Prints	4.50	nominal
New Mixed Cuttings	2.00	@ 2.50
New Dark Cuttings	1.90	@ 2.10
No. 1 White Linens	9.00	@11.00
No. 2 White Linens	6.50	nominal
No. 3 White Linens	5.00	nominal
No. 4 White Linens	3.50	nominal
Old Extra Light Prints	2.00	nominal
Ord. Light Prints	1.75	nominal
Med. Light Prints	1.50	nominal
Dutch Blue Cottons	1.85	nominal
German Blue Cottons	1.50	nominal
Ger. Blue Linens	3.50	nominal
Checks and Blues	1.50	nominal
Dark Cottons	1.10	@ 1.15
Shoppery	1.00	@ 1.05
French Blues	2.00	nominal

Bagging

Prices to Mill f. o. b. N. Y.

Gunny No. 1—		
Foreign	.80	@ .85
Domestic	.80	@ .85
Wool, Tares, light	1.00	@ 1.10
Wool, Tares, heavy	1.10	@ 1.15
Bright Bagging	.90	@ 1.00
No. 1 Scrap	.80	@ .90
Sound Bagging	.75	@ .85
Manila Rope—		
Foreign	5.00	@ 5.25
Domestic	5.25	@ 5.50
New Bu. Cut	1.80	@ 1.90
Hessian Jute Threads—		
Foreign	2.00	@ 2.50
Domestic	2.00	@ 2.25
Mixed Strings	.75	@ .85

Twines

Cotton—(F. o. b. Mill)		
No. 1	.33	@ .35
No. 2	.31	@ .33
No. 3	.27	@ .29
India, No. 6 basis—		
Light	.18	@ .19
Dark	.18	@ .19
B. C., 18 Basis	.39	@ .41
A. B. Italian, 18 Basis	.51	@ .61
Finished Jute—		
Light, 18 basis	.26	@ .27
Dark, 18 basis	.27	@ .29
Jute Wrapping, 3-6 Ply—		
No. 1	.23	@ .24
No. 2	.31	@ .32
Tube Rope—		
4-ply and larger	.15	@ .17
Fine Tube Yarn—		
5-ply and larger	.19	@ .21
4-ply	.20	@ .22
3-ply	.20	@ .22
Unfinished India—		
Basis	.16	@ .17
Paper Makers Twine Balls	.13	@ .15
Box Twine, 2-3 ply	.17	@ .18
Jute Rope	.13	@ .15
Amer. Hemp, 6	.33	@ .35
Sisal Hay Rope—		
No. 1 Basis	.15	@ .17
No. 2 Basis	.13	@ .15
Sisal Lath Yarn—		
No. 1	.14	@ .15
No. 2	.11	@ .13
Manila Rope	.18	@ .19

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, White, No. 1	3.90	@ 4.15
Hard, White, No. 2	3.50	@ 3.70
Soft, White, No. 1	3.50	@ 3.65
Flat Stock—		
Stitchless	1.85	@ 1.95
Over Issue Mag.	1.85	@ 1.95
Solid Flat Book	1.75	@ 1.85
Crumpled No. 1	1.25	@ 1.35
Solid Book Ledger	2.25	@ 2.50
Ledger Stock	1.90	@ 2.00
No. 1 White News	1.70	@ 1.80
New B. B. Chips	.65	@ .70
Manilas—		
New Env. Cut	2.40	@ 2.60
New Cut No. 1	1.75	@ 1.90
Extra No. 1, Old	1.40	@ 1.60
Print	.90	@ 1.00
Container Board	.65	@ .75
Bogus Wrapper	.60	@ .70
Old Krafts, machine compressed Bales	1.80	@ 1.90
News—		
Strictly Overissue	.75	@ .80
Strictly Folded	.67½	@ .72½
No. 1 Mixed Paper	.57½	@ .62½
Common Paper	.35	@ .40

CHICAGO

[FROM OUR REGULAR CORRESPONDENT.]

Paper

F. o. b. Mill

All Rag Bond	35	@ 40
No. 1 Rag Bond	30	@ 35
No. 2 Rag Bond	18	@ 20
Water Marked Sulphite	10	@ 14
Sulphite Bond	9	@ 12
Sulphite Ledger	12	@ 13
Superfine Writing	18	@ 24
No. 1 Fine Writing	14	@ 22
No. 2 Fine Writing	12	@ 20
No. 3 Fine Writing	8	@ 12
No. 1 M. F. Book	6¼	@ 7
No. 1 S. & S. C. Book	6¾	@ 7½
Coated Book	8¾	@ 10¾
Coated Label	8½	@ 10½
News—Rolls, mill	3½	@ 4½
News—Sheets, mill	3¾	@ 4¾
No. 1 Manila	5	@ 5½
No. 1 Fiber	4½	@ 5
No. 2 Manila	4	@ 4½
Butchers' Manila	4	@ —
No. 1 Kraft	6¼	@ 7
No. 2 Kraft	5¾	@ 6
Wood Tag Boards	4	@ —
Screenings	2½	@ —
Boards, per ton—		
Plain Chip	35.00	@40.00
Solid News	40.00	@45.00
Manila Lined Chip	45.00	@52.50
Container Line—		
85 Test	55.00	@60.00
100 Test	50.00	@ —
Binders' Board	75.00	@ —
Solid Wood Pulp	80.00	@90.00
Straw Board	35.00	@40.00
Filled Pulp Board	55.00	@60.00

Old Papers

Shavings—		
No. 1 Hard White	3.50	@ 3.75
No. 1 Soft Shav.	3.25	@ 3.35
No. 1 Mixed	1.10	@ 1.25
No. 2 Mixed	1.00	@ 1.10
White Envel. Cuttings	3.50	@ 3.75
Ledgers and Writings	1.75	@ 1.85
Solid Books	1.50	@ 1.60
No. 1 Books, light	.90	@ 1.00
Blanks	1.75	@ 2.00
Ex. No. 1 Manila	1.90	@ 2.00
Manila Envelope Cuttings	2.00	@ 2.10
No. 1 Manilas	1.00	@ 1.10
Folders News (over issue)	.80	@ .85
Old Newspaper	.75	@ .80
Mixed Papers	.70	@ .75
Straw Clippings	.70	@ .75
Binders Clippings	.70	@ .75
Kraft	1.75	@ 2.00
New Kraft Cuts	2.00	@ 2.10
Roofing Stock, f.o.b. Chicago, Net Cash—		
No. 1	25.00	@ —
No. 2	23.00	@ —
No. 3	21.00	@ —
No. 4	21.00	@ —

PHILADELPHIA

[FROM OUR REGULAR CORRESPONDENT.]

Paper

Bonds	.10	@ .60
Ledgers	.15	@ .40
Writings—		
Superfine	.15	@ .20
Extra fine	.12	@ .22
Fine	.20	@ .30
Fine, No. 2	.20	@ .25
Fine, No. 3	.15	@ .20
Book, M. F.	.06	@ .09
Book, S. S. & C.	.08	@ .15
Book, Coated	.08	@ .15
Coated Lithograph	.10	@ .15
Label	.08	@ .13
News	.05	@ .07
No. 1 Jute Manila	.12	@ .13
Manila Sul., No. 1	.08	@ .08½
Manila No. 2	.07½	@ .08
No. 2 Kraft	—	@ .08½
No. 1 Kraft	—	@ .09½
Common Bogus	.02½	@ .03
Straw Board	35.00	@45.00
News Board	32.50	@35.00
Chip Board	27.50	@32.00
Wood Pulp Board (Carload Lots)	90.00	@100.00
Binder Boards—		
Per ton	$65.00	@75.00
Carload lots	60.00	@65.00
Tarred Felts—		
Regular	48.00	@50.00
Slaters	54.00	@56.00
Best Tarred, 1-ply (per roll)	1.35	@ 1.50
Best Tarred, 2-ply (per roll)	1.00	@ 1.15
Best Tarred, 3-ply	1.50	@ 1.65

Bagging

F. o. b. Phila.

Gunny No. 1—		
Foreign	.75	@ —
Domestic	.70	@ —
Manila Rope	4.00	@ 4.50
Sisal Rope	.75	@ .80
Mixed Rope	.75	@ .80
Scrap Burlaps	1.00	@ 1.25
Wool Tares, heavy	2.50	@ 2.75
Mixed Strings	.75	@ .80
No. 1, New Lt. Burlap	.75	@ .80
New Burlap Cuttings	1.75	@ 2.10

Old Papers

F. o. b. Phila.

Shavings—		
No. 1, Hard White	4.00	@ 4.25
No. 2, Hard White	3.50	@ 3.75
No. 1 Soft White	3.35	@ 3.50
No. 2 Soft White	2.00	@ 2.25
No. 1 Mixed	1.50	@ 1.75
No. 2 Mixed	1.00	@ 1.25

(Continued on page 66)

XUM

Imports and Exports of Paper and Paper Stock

(*Continued from page 60*)

PHILADELPHIA IMPORTS

WEEK ENDING JULY 14, 1922

American Express Co., Capulin, London, 159 coils old rope.
Katzenstein & Keene, Inc., Manchester Importer, Liverpool, 57 bls. new cuttings.
Katzenstein & Keene, Inc., Blydendyk, Rotterdam, 348 bls. rags.
E. J. Keller Co., Inc., by same, 423 bls. rags.
Castle, Gottheil & Overton, Blydendyk, Amsterdam, 125 bls. rags.
Castle, Gottheil & Overton, Manchester Importer, Manchester, 135 bls. rags.
Chemical Nat'l Bank, Schoharie, Hamburg, 465 bls. rags.
Guaranty Trust Co., by same, 89 bls. rags.
Ladenburg, Thalman & Co., by same, 354 bls. rags.
Coal & Iron Nat'l Bank, by same, 58 bls. rags.
American Wood Pulp Corp., by same, 32 bls. rags.
M. O'Meara Co., by same, 63 bls. rags.
Castle, Gottheil & Overton, by same, 715 bls, 143 tons wood pulp.

BOSTON IMPORTS

WEEK ENDING JULY 14, 1922

Castle, Gottheil & Overton, Georgian, Hamburg, 825 bls. wood pulp.
G. D. Downing & Co., Mackinaw, Liverpool, 3 cs. paper.
W. Lindsey & Co., Winifredian, Liverpool, 15 cs. tissue paper.
F. S. Webster Co., by same, 19 cs. tissue paper.
First National Bank, Mackinaw, Liverpool, 408 pkgs. manila rope.
E. Butterworth & Co., Winifredian, Liverpool, 229 coils manila rope.
Train Smith Co., by same, 100 coils manila rope.
International Purchasing Co., by same, 79 coils manila rope.
E. Butterworth & Co., Caledonian, Manchester, 187 coils manila rope.
A. Katzenstein & Co., by same, 40 bls. new cuttings.
Train Smith Co., by same, 57 bls. new cuttings.
Maurice O'Meara Co., by same, 82 bls. bagging.
Maurice O'Meara Co., Winifredian, Liverpool, 139 bags hide cuttings.
E. F. Russ Co., by same, 180 bags hide cuttings.
E. F. Russ Co., Caledonian, Manchester, 482 bags hide cuttings.
The Borregaard Co., Virginia, Christiania, 5,700 bls. wood pulp.
J. Andersen & Co., by same, 660 bls. wood pulp.
Scandinavian American Trading Co., by same, 1,143 bls. wood pulp.
Order, by same, 762 bls.

NORFOLK IMPORTS

WEEK ENDING JULY 14, 1922

Republic Bag & Paper Co., Honolulu, Hernosand, 3,000 bls. 508 tons kraft pulp.

Bids and Awards for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 19, 1922.—The purchasing officer of the Government Printing Office has received the following paper bids:

50,000 lbs. 26 x 38—No. 50, Chip Board; E. F. Bond Paper Company, at $36.80 per ton; Reese & Reese, $39.82; Philip Rudolph & Son, Inc., $43.65; Mathers-Lamm Paper Company, $35.40; The Whitaker Paper Company, $37.47; Dobler & Mudge, $39.70; C. L. La Boiteaux Company, $35.40.

172,000 lbs. 38 x 48—86, White S. & S. C. Printing Paper: Bargain Paper Company, Inc., $.069 per pound; Dobler & Mudge, $.0672; Kalamazoo Paper Company, $.075; Old Dominion Paper Company, $.07997; Bryant Paper Company, $.0695.

17,500 lbs. 20½ x 29—50 White Laid Antique Printing Paper: The Whitaker Paper Company, $.1224 per pound; Dobler & Mudge, $.115; Mathers-Lamm Paper Company, $.0975; Reese & Reese, $.1113.

7,200 lbs. Sample A. Rough Cover Paper 20 x 25—48 and 14,400 lbs. Sample B. Rough Cover Paper 20 x 25—48 Quaker Drab, Terra Cotta, Sage, Khaki and Dawn: Knowlton Brothers at $.07845, $.08345, $.09095, $.10909 and $.08345; Reese & Reese $.0859 and $.0959; Mathers-Lamm Paper Company, $.0854 and $.0953; Dobler & Mudge, $.083 and $.093; Whitaker Paper Company, $.0855 and $.0894; R. P. Andrews Paper Company, $.0808 and $.0883.

The Whitaker Paper Company has been awarded the contract by the Purchasing Officer of the Government Printing Office for furnishing 16,000 pounds (7,800 sheets) of various sizes best quality binders board at $.0355 per pound, bids for which were opened on June 12. The same firm will also furnish 40,000 pounds (14,400 sheets) of No. 2 quality binders board 25 x 30 in. No. 18 at $.03945 per pound, bids for which were opened on June 29.

Knowlton Brothers have been awarded the contract for furnishing 4,800 pounds (100 reams) of 20 x 25—48 Quaker drab rough cover paper at $.07845 per pound and 7,200 pounds (150 reams) of dawn colored rough cover paper at $.08345. The R. P. Andrews Paper Company will furnish 2,400 pounds of terra cotta colored of the same at $.0808 and the Whitaker Paper Company will furnish 4,800 pounds (100 reams) of sage colored and 2,400 pounds of khaki colored, both at $.0869, bids for which were opened on July 10.

The Whitaker Paper Company has been awarded the contract by the Purchasing Officer of the Government Printing Office for furnishing 10,100 pounds (100 reams) of 33 x 33—101 of rope manila paper at 8½ cents per pound, bids for which were opened on June 27.

The Ætna Paper Company will furnish 4,100 lbs (200 reams) of 17 x 28—20½ white glazed bond paper at $.1273 per pound, bids for which were opened on July 7.

The Mathers-Lamm Paper Company will furnish 50,000 lbs. (50,000 sheets) of 26 x 38—No. 50 chipboard at $.0177 per pound, bids for which were opened on July 10.

The Panama Can Office will open bids on July 25 for 1,000,000 hygienic paper drinking cups. Bids will also be opened on the same date for 125 cases of good quality toilet tissue paper.

The R. P. Andrews Paper Company has been awarded the contract by the Purchasing Officer of the Government Printing Office for furnishing 35,000 pounds (22,000 sheets) of No. 2 quality binders board at $.047 per pound, bids for which were opened on June 12.

Paper Men Speak on Industrial Relations

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., July 17, 1922,—Henry A. Babcock, manager of the Interlake Pulp and Paper Company mill at Appleton, and S. B. Harding, of the Harding Machine Works, Oshkosh, were to be the principal speakers at the monthly meeting of the Fox River Valley Industrial Relations' Association in Appleton Tuesday evening, July 18. R. E. Watson of the Wisconsin Wire Works was in charge of the arrangements. Mr. Babcock was to speak on "Employment Policies" while Mr. Harding's subject was to be "How Scientific Human Analysis From Outward Appearance Points to Vocational Fitness."

To Review Decision and Blotter Duty

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 19, 1922.—The Secretary of the Treasury has communicated with the Assistant Attorney General at New York requesting him to fill in the name of the Secretary of the Treasury on an application with the United States Court of Customs Appeals for a review of a decision of the Board of United States General Appraisers wherein the board held that certain printed blotters classified as articles manufactured from bibulous paper was dutiable at 30 per cent ad valorem whereas it should have been dutiable at 15 per cent ad valorem as printed matter.

XUM

The B Co INC

Quality: *It means more than price*

PULPS

"Hafslund Bear" "Forshaga"

BLEACHED SULPHITE

"Klarafors"

EASY BLEACHING SULPHITE

STRONG UNBLEACHED SULPHITE

"Hurum" "Bamble"

EXTRA STRONG KRAFT; BLEACHED AND BLEACHABLE SULPHATE

"Edsvalla" 50% MOIST "Dejefors" DRY

WHITE SPRUCE—GROUND WOOD

Tonnage available on dock for prompt shipment

THE BORREGAARD CO., INC.
200 FIFTH AVENUE NEW YORK CITY

Best Quality Newsprint in Sheets and Rolls

Open to accept orders for shipments commencing August.

Please ask us for samples and quotation.

FERNSTROM PAPER CO., Inc.
Scandinavian Paper Mills' representatives
150 Nassau Street New York City
Tel. Beekman 5891

TAYLOR, BATES & CO.

Members New York Stock Exchange
Members New York Cotton Exchange

100 Broadway, New York
Tel. Rector 1140

BONDS STOCKS COTTON	Bought and Sold on Commission

BRANCH OFFICE
41 EAST 42nd STREET
Tel. Murray Hill 5631

1864 1922

"EXCELSIOR" FELTS

for every grade of

PULP AND PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made the first endless paper machine felts manufactured in America.

Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt problems.

KNOX WOOLEN COMPANY
CAMDEN, MAINE

SOLD BY
BULKLEY, DUNTON & COMPANY
75-77 Duane St., N. Y., and direct

Miscellaneous Markets

OFFICE OF THE PAPER TRADE JOURNAL,
TUESDAY, July 18, 1922.

ALUM.—Prices have remained unchanged in the alum market during the past week and light transactions were made on the basis of 3.90 cents a pound for powdered alum, 3.65 for ground and 3.50 for lump.

BLEACHING POWDER.—Bleach may practically be no longer considered a factor in the market due to its extreme scarcity. Whatever stocks were on hand several weeks ago were hastily cleaned up at the prevailing price of 1.60 cents a pound.

BLANC FIXE.—As with other chemicals, the market for blanc fixe has been supported by a hand-to-mouth demand, both the coal and rail strikes hampering production. Prices are listed at 3.50 to 3.75 cents a pound for the dry and $37.50 to $45 per ton for the pulp.

CASEIN.—Domestic casein producers have been operating full-blast to meet the strong demand for this commodity and sales have been registered at quotations ranging from 10.00 to 14.00 cents a pound. The larger dealers report that there is a ready market for Argentine Casein at 14.00 cents a pound but importations are in very small quantities.

CAUSTIC SODA.—The quoted prices on caustic range between 3.10 and 3.25 cents a pound depending upon the location of the plant. The spot price of 2.50 cents is figured on a basis of 60 per cent, works.

CHINA CLAY.—A strong demand for English China clays still exists in this country, importers quoting $14 to $22 per ton. Domestic washed clay is quoted at $7 to $10 a ton and unwashed at $5.50 to $8.

LIQUID CHLORINE.—Tank-car lots of chlorine are still available at prices as low as 4.25 to 4.50 cents a pound, and the slack summer demand has held quotations on 100-lb. cylinders from 4.50 to 7.00 cents.

ROSIN.—This commodity is still firm at $6.20 on grades E, F, and G, Savannah, Ga., and $5.20 ex dock New York.

SALTCAKE.—There is hardly any spot saltcake available in the market at the present time and some dealers are asking as high as $25 per ton, works, for spot shipments and $22 for forward shipments. Chrome cake occasionally does better than the quoted $18 a ton and acid cake is quoted nominally at $20 to $22.

SATIN WHITE.—Similar to the market for blanc fixe, the satin white market has cased up considerably in recent weeks and the demand is slow but regular. Quotations range from 1.50 to 2.00 cents a pound.

SODA ASH.—Producers report steady contract withdrawals of soda ash at the quoted price of 1.10 cents per 100 pounds on a 48 per cent basis in bulk and $1.20 in bags. Contract basis figures approximately $1.51 per cwt., works.

SULPHUR.—Brimstone continues to hold firm at the level price of $18 to $20 a ton. The demand is reported to have fallen off slightly during the summer months.

STARCH.—Moving in regular quantities, starch has stiffened up slightly, the paper maker's grade now being quoted at 2.57 cents a pound in bags and 2.85 in barrels. Pearl starch is proportionately higher and is listed at 2.47 and 2.75 for these respective amounts.

SULPHATE OF ALUMINA.—Water filtration companies are consuming large quantities of aluminum sulphate at this time of year and the steady demand from paper manufacturers as well has kept producers of the chemical running full blast. Iron free is quoted at 2.15 to 2.35 cents a pound with the plain at 1.40 to 1.50.

TALC.—Talc is easy at $15 to $17 a ton and dealers report that regular quantities are passing into consuming channels, the market having a strong tone.

Market Quotations

(*Continued from page 63*)

Solid Ledger Stock.	2.25	@	2.50
Writing Paper.....	1.80	@	2.00
No. 1 Books, heavy.	1.60	@	1.75
No. 2 Books, light.	1.40	@	1.50
No. 1 New Manila.	2.75	@	3.00
No. 1 Old Manila..	1.50	@	1.75
Container Manila..	1.00	@	1.10
Old Kraft.....	2.00	@	2.25
Overissue News....	.75	@	.80
Old Newspaper.....	.50	@	.60
No. 1 Mixed Paper.	.45	@	.50
Common Paper.....	.40	@	.50
Straw Board, Chip.	.40	@	.45
Binders' Bd. Chip.	.40	@	.45

Domestic Rags—New.
Price to Mill, f. o. b. Phila.

Shirt Cuttings—			
New White, No. 1	.10	@	.10¼
New White, No. 2	.05½	@	.06½
Silesias, No. 1...	.05½	@	.06
New unbleached..	.09	@	.09½
Washables	.03½	@	.03¾
Fancy	.04¼	@	.04¼
Cottons—according to grades—			
Blue Overall.....	.04½	@	.05¾
New Blue.....	.02	@	.02¼
New Black Soft.	.03	@	.03¼
New Light Sec-			
ond.....	.02	@	.02¼
Khaki Cuttings...	.02¾	@	.03¼
Corduroy	.02	@	.02½
New Canvas.....	.07	@	.07½
New Black Mixed Old	2.75	@	3.00
White, No. 1—			
Repacked	.06	@	.06½
Miscellaneous ...	.04½	@	.04¾
White, No. 2—			
Repacked	.03	@	.03½
Miscellaneous ...	.02¾	@	.02¾
Thirds and Blues—			
Repacked	1.65	@	1.80
Miscellaneous ...	1.40	@	1.55
Black Stockings....	1.75	@	2.25
Roofing Stock—			
No. 1.....	1.00	@	1.10
No. 2.....	.90	@	1.00
No. 3.....	.80	@	.90
No. 4.....	.80	@	.90
No. 5A.....	nominal		
B.....	nominal		
C.....	nominal		

BOSTON

[FROM OUR REGULAR CORRESPONDENT.]

Paper

Bonds	.06¾	@	.60
Ledgers	.07½	@	.35
Writings	.07½	@	.22½
Superfine	.15	@	.22½
Fine	.15	@	.18
Books, S. & S. C...	.07	@	.10
Books, M. F.....	.05¾	@	.07½
Books, coated	.08	@	.10
Label	.08½	@	.09½
News sheets	3.75	@	—
News, rolls	3.50	@	—
Manilas—			
No. 1 Manila ...	$6.75	@	
No. 1 Fibre	.07½	@	—
No. 1 Jute.....	8.50	@	8.75
Kraft Wrapping	.06¼	@	.07
Common Bogus	3.00	@	

Boards

(Per Ton Destination)

Chip	$35.00	@	37.50
News, Vat Lined...	36.50	@	38.50
Wood, Vat Lined..	47.25	@	
Filled News Board..	37.50	@	
Solid News Board..	42.00	@	45.00
S. Manila Chip....	52.50	@	
Pat. Coated.....	70.00	@	75.00

Old Papers

Shavings—			
No. 1 Hard White	3.70	@	3.90
No. 1 Soft White	3.30	@	3.45
No. 1 Mixed....	1.50	@	1.75
Ledgers & Writings	.03½	@	—
Solid Books	1.85	@	2.10
Blanks	1.30	@	1.45
No. 2 Books Light.	.60	@	.70
Folded News, over-			
issues	$11.25	@	12.50
Gunny Bagging....	.70	@	.75
Manila Rope.....	4.25	@	4.50
Common Paper.....	.50	@	.60
Old News.....	.55	@	
Old Kraft.....	1.75	@	1.80

TORONTO

[FROM OUR REGULAR CORRESPONDENT.]

Paper

(Mill Prices to Jobbers f. o. b. Mill)

Bond—			
Sulphite	.11	@	.12½
Light tinted.....	.12	@	.13½
Dark tinted.....	.13½	@	.15
Ledgers (sulphite).	—	@	.13
Writing	.10½	@	.13½
News, f. o. b. Mills—			
Rolls (carloads).	3.50	@	
Sheets (carloads).	—	@	4.25
Sheets (2 tons or over)	—	@	4.50
Book—			
No. 1 M. F. (carloads)	9.50	@	—
No. 2 M. F. (carloads)	8.50	@	—
No. 3 M. F. (carloads)	8.00	@	—
No. 1 S. C. (carloads)	10.00	@	—
No. 2 S. C. (carloads)	9.00	@	—
No. 1 Coated and litho.	14.00	@	—
No. 2 Coated and litho.	13.00	@	—
No. 3 Coated and litho.	12.25	@	—
Coated and litho., colored	14.25	@	—
Wrapping—			
Grey	4.50	@	—
White Wrap	5.00	@	—
"B" Manila	5.50	@	—
No. 1 Manila ..	6.75	@	—
Fibre	6.75	@	—
Kraft, M. F.	8.00	@	—
M. G.	8.15	@	—

Pulp

(F. o. b. Mill)

Ground wood....	$27.50	@	35.00
Sulphite easy bleaching	60.00	@	65.00
Sulphite news grade.	50.00	@	60.00
Sulphite, bleached..	90.00	@	95.00
Sulphate	70.00	@	

Old Waste Papers

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut..	3.75	@	—
Soft White Book Shavings	3.40	@	3.45
White Bl'k News	1.70	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.70	@	—
Light and Crumpled Book Stock	1.55	@	—
Ledgers and Writings	1.95	@	—
Solid Ledgers....	1.95	@	—
Manilas—			
New Manila Cut.	1.70	@	—
Printed Manilas..	.90	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.90	@	—
Folded News....	.80	@	—
No. 1 Mixed Papers	.60	@	—

Domestic Rags—
Price to mills, f. o. b. Toronto.

	Per lb.		
No. 1 White shirt cuttings	.10¼	@	.11
No. 2 White shirt cuttings	.05½	@	.05¾
Fancy shirt cuttings	.05	@	.05½
No. 1 Old whites	.04	@	—
Thirds and blues	.02	@	.02½
	Per cwt.		
Black stockings..	2.00	@	2.25
Roofing stock:			
No. 1.....	1.35	@	—
No. 2.....	1.20	@	—
Roofing stock:			
Manila rope	.05¼	@	.05¾
No. 2.....	.01½	@	—
Gunny bagging....	1.00	@	1.25

The Home of Quality

FACTORY
132ND TO 133RD ST. & BROOK AVE

PAPER BAGS

Sacks and Specialties

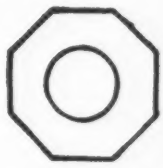
ESTABLISHED 1901

SCHORSCH & CO.

Manufacturers

500 East 133d Street : New York

This Registered Trade Mark Octagon



on a Paper Bag Vouches for Its Good Quality

Buchanan & Bolt Wire Company

ESTABLISHED 1878 AT HOLYOKE, MASS.

Makers of Highest Grade Fourdrinier Wires, Dandy Rolls, Cylinder Covers, Brass Wire Cloth of all Meshes for Paper, Pulp and Coating Mills—Quality Guaranteed

We make a specialty of Fine Wires for Magazine and Book Papers

Felt Test—Lowest Cost per Ton

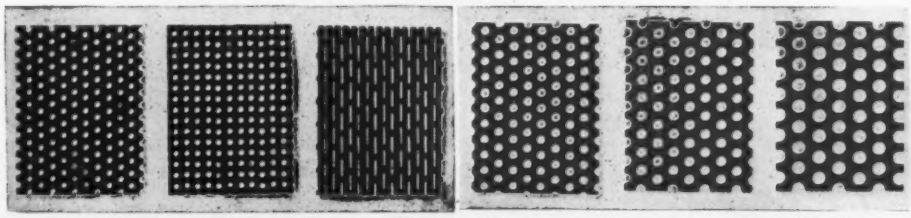
If you judge felt values, not by what you put into the equipment, but what you get out of it—then you will specify ORR 3 stripe Endless Felts, for ORR felts will produce the lowest cost per ton. They "stand up" under severe usage. Orr durability is acknowledged everywhere. Their strength and long life are as dependable as their reliability and quality.

In the 32 grades of Felts and Jackets we can match your most exacting demands. Tell us the kind of paper you desire to make, and we will send you samples of felts that will economically serve you and help you to produce paper at lowest cost per ton.

THE ORR FELT & BLANKET COMPANY, Piqua, Ohio

PERFORATED METALS

All sizes and shapes of Holes



All kinds and thicknesses of Metal

For Centrifugal and Rotary Screens, Drainer Bottoms, Filter Plates, Pulp Washers, etc.

The Harrington & King Perforating Company

618 No. Union Ave., Chicago, Ill., U. S. A. **New York Office, 114 Liberty St.**

WANT AND FOR SALE ADVERTISEMENTS

HELP WANTED

WANTED—Paster man to take charge of three pasters. Excellent opportunity for right man. Address, Box 5229, care Paper Trade Journal. Jy-20

SUPERINTENDENT WANTED by modern progressive mill located in Middle Wesct. Must be fully up to date on cylinder tissue, have some knowledge of converting, be good at handling help. Man not over 35 years old preferred. Applicant must state age, past and present connections, salary now receiving if employed and other information considered of interest to a prospective employer. Address, Box 5192, care Paper Trade Journal. tf

WANTED—A night foreman in two machine Kraft mill. Please state experience and wages desired. Address, Box 5242, care Paper Trade Journal. J-27

WANTED to correspond with able paper distributors in Middle West to handle output of small plant making Filter Paper, Rope and Manilas. Special inducement offered. Address, Box 5245, care Paper Trade Journal. J-27

WANTED—Man capable of supervising Fibre Container factory equipped with most modern machinery. Experienced man preferred. Address, Box 5246, care Paper Trade Journal. tf

ASSISTANT SUPERINTENDENT wanted. Must have a good knowledge of colors. Apply, giving full experience and salary expected, to Box 5250, care Paper Trade Journal. J-20

WANTED—Foreman on Satchel Bottom Paper Sack Machines, Rotary Tuber and Bottomers. Good chance. Steady job, New York City factory. Reply giving experience, age, salary expected, etc., to Box 5243, care Paper Trade Journal. J-20

WANTED—Two good Backtenders by mill in the Middle West running on plain chip and specialties. Address, Box 5264, care Paper Trade Journal. A-3

WANTED—Master Mechanic, capable of taking entire charge of repair crews in a large up-to-date box board mill in middle west. None but a hustler and live wire considered. References required. Address, Box 5265, care Paper Trade Journal. A-3

BEATER ENGINEER, one familiar with Chipboard, test liner and folding box board. Must be good on beater colors and be able to handle help in an efficient manner. Address, Box 5266, care Paper Trade Journal. A-3

WANTED—Beater Engineer, experienced on roofing stock. Good wages, steady work, mill in East. Address, Box 5267, care Paper Trade Journal. J-20

WANTED—A finishing room foreman who has also had experience in shipping for Pacific Coast Tissue Mill. State experience and salary required in answer. Address, Box 5268, care Paper Trade Journal. J-20

WANTED:

Master Tissue Paper Crepers who fully understand the art of creping lightweight tissues for napkins. A splendid and exceptional opportunity is offered to the right men. When replying please furnish full details of your past experiences, etc. Independent Paper Mills, Inc., 68 Thirty-fifth Street, Brooklyn, New York. tf

HELP WANTED

WANTED—Experienced Potdevin Automatic Bag Machine Adjusters; also old style square and flat, and experienced balers. All applicants must state previous experience and salary expected. Send all communications to Consolidated Paper Bag Company, 125 Merrimac Street, Boston, Mass. tf

WANTED—Experienced man with investment to connect himself permanently with paper stock company on Pacific Coast and take over management of Los Angeles plant. Write fully stating experience, salary expected, contemplated investment, etc. All correspondence confidential. Address, Box 5261, care Paper Trade Journal. A-10

WANTED—District Salesmen on a commission basis to take on an important line in New England, New York, Pennsylvania and New Jersey, Michigan, Wisconsin and Minnesota and the far west. We can only consider those who already have an established trade and who cover their territory frequently. Address, with full details, Box 5262, care Paper Trade Journal. J-27

WANTED—Married man for plant Superintendent. One who is familiar with manufacturing pulp products, with certain knowledge of paper mill machinery and equipment, capable of handling men and women with mechanical ability, and production producer. State experience and salary. Address, Box 5263, care Paper Trade Journal. A-3

SITUATIONS WANTED

PAPER LINE—Man available. Fifteen years' experience with large paper converter, desires position in sales end paper mill or jobbing line; would consider part interest in established jobbing house. Best references. Address, Box 5252, care Paper Trade Journal. A-3

PRACTICAL PAPER MAKER desires a position with a board or specialty mill. Having had experience in both cylinder and fourdrinier mills in all departments. Have been doing engineering work in different mills for past four years. Experienced in construction and mechanical details. Address, Box 5233, care Paper Trade Journal. Jy-20

SALESMAN, experienced, desires to represent mill manufacturing medium grade of paper specialties for New England Territory. Also mill manufacturing Kraft Wrapping Paper. Address, Box 5249, care Paper Trade Journal. J-20

COATING MILL SUPERINTENDENT now employed, desires to make a change. Twenty-four years of sound practical experience on all grades of coated papers. For further information, address, Box 5219, care Paper Trade Journal. Jy-20

MARRIED MAN with 15 years' experience in ground wood mills is open for position of superintendent or foreman. Can produce results. Best of references. Address, Box 5232, care Paper Trade Journal. Jy-20

EXPERIENCED SALESMAN—Fine papers, desires position to sell Chicago and Central West jobbers. Address, Box 5253, care Paper Trade Journal. A-3

YOUNG MAN—One year in college, four years in pulp and paper mills, seeks connection leading to selling position. Familiar with pulp and paper of all kinds; also manufacturing processes. References. Address, Box 5254, care Paper Trade Journal. J-20

EXPERIENCED ENGINEER, technical graduate, five years' experience in factory building construction and design, hydro-electric development and paper mill design, desires connection with paper mill as engineer and to handle executive work. Address, Box 5257, care Paper Trade Journal. J-20

SITUATIONS WANTED

MILL CONNECTION WANTED for the Greater New York territory and vicinity, by selling organization in touch with the large buyers and users of paper. M. F. Super, Coated, Litho Coated, Bond Kraft or News Print, preferred. Have ample capital to finance large volume of business. Eastern Mill preferred. Address, Box 5258, care Paper Trade Journal. A-10

$6,000 OFFICE MANAGER, Sales, Credits, Purchases, Costs, etc., seeks new connection. Highest references given. Address, Box 5259, care Paper Trade Journal. A-3

SALESMAN—Specialist on Coated Lithographic Papers and Boards; also Offset and Printing Papers, desires to connect with mill or dealers having mill connections. Can produce good business. Address, Box 5260, care Paper Trade Journal. J-20

MAN EXPERIENCED IN PAPER MILL ACCOUNTING, costs, office management and administrative problems, seeks position with progressive firm. Address, E. J. B., P. O. Box 760, Cincinnati, Ohio. A-3

A MAN thoroughly competent to run Calender and Press Roll Grinding Machine and able to determine Crowns desired. Wishes permanent or temporary work. Address, Box 5197, care Paper Trade Journal. Ag-3

SUPERINTENDENT wishes position in news print mill. 10 years' experience in up-to-date fast running mills. Knows ground wood and sulphite and can take care of repairs and keep mill in good condition for same. Can furnish best of references from manager of up-to-date and well equipped mill. Address, Box 5238, care Paper Trade Journal. Jy-20

SUPERINTENDENT wishes position. 28 years' experience in mills making news, manilas, fibres, machine finish book, and writing, coating stock, tissue, and some experience on bond papers. Would take night foreman or boss machine tending if chances are good for advancement. Strictly up-to-date on repairs and not afraid to hustle. Best references for any grade mentioned above. Address, Box 5239, care Paper Trade Journal. Jy-20

BEATERMAN wishes a position. Well up on all grades of stock, box boards, container, book manilas, tissues and most all grades. Married. Can furnish best of references. Address, Box 5240, care Paper Trade Journal. Jy-20

MASTER MECHANIC with 27 years' Pulp and Paper Mill experience is open for engagement, familiar with Boilers, Engines, Electrical and General Maintenance. First class references. Address, Box 5201, care Paper Trade Journal. Jy-20

A PAPERMAKER of ability knows paper from A to Z, number of years jobbing experience, as Manager and Buyer, Paper, Twine and Cordage, desires to connect with a reliable House in a similar capacity, high grade references. Address, Box 5185, care Paper Trade Journal. Jy-20

WANTED: By a New York Manager and Representative of an out of town Manufacturer of Toilet Paper and Paper Towels, similar connection with reputable manufacturer. Have been in the line over 20 years, over 15 years of which I have spent with my concern. Address, Box 5114, care Paper Trade Journal. Jy-20

BEATER ENGINEER wishes to make a change from his present position. Experienced on high grade Box Boards, Tests, etc. Also fine papers. Married, sober. Good references. Address, Box 5167, care Paper Trade Journal. Jy-20

KRAFT PULP MILLS—Tonnage is what you want. Get in touch with the man who can give it you at the right cost. Address, Box 5269, care Paper Trade Journal. J-27

XUM

SITUATIONS WANTED

SALES MANAGER—Man 40, college education, thoroughly experienced as salesman, wishes to make connection with firm desiring a sales or district manager. Have wide experience in selling beater room equipment and knives. Large following among paper mills in Eastern Penna. Address, Box 5270, care Paper Trade Journal. A-10

SULPHATE PULP SUPERINTENDENT, or Assistant, with proven ability, desires connection with mill having production trouble. Nine years' experience in the U. S. and Canadian mills. Best of references. Address, Box 5276, care Paper Trade Journal. A-17

MECHANICAL DRAFTSMAN, 16 years' technical and practical experience on construction and operation of Sulphite Ground Wood and Newspaper Mills. Open for position. Address, Box 5271, care Paper Trade Journal. J-27

SITUATION WANTED by young, competent all around office man. Have had several years' of experience and worked up from the bottom and is now head of pulp and paper industry accounting staff. Thoroughly familiar with voucher system and Elliott Fisher bookkeeping records. Good reference. Write fully first letter. Address, Box 5272, care Paper Trade Journal. J-27

ASSISTANT MANAGER wants position. College graduate. Six years' experience in one of the largest pulp and paper mills on continent. Thoroughly familiar with office and shop practices and management. Recognized leader and organizer. Address, Box 5273, care Paper Trade Journal. J-27

FOR SALE

FOR SALE—Tissue Paper Mill property, now running, with an established trade. Includes brick house and three tenement houses. About 16 acres all told. Property self supporting outside of mill. Located in city limits. Address, Box 5274, care Paper Trade Journal. J-20

WANTED—Four ft. barker, either "Green Bay" or other equally good machine. Address, Box 5275, care Paper Trade Journal.

FOR SALE—One No. 4 National Smith & Winchester Sack machine, making complete sacks from 1/16 to 1/4 bbl., perfect running condition. If interested write for further particulars to Sneierson Bros., Inc., 63 Washington St., No. Boston, Mass. J-20

FOR SALE—One No. 10 Reeves Variable Speed Transmission. Brownville, N. Y. A-3

FOR SALE—1 small Jordan Engine. 6 Farnum Drives. Complete Triple-Deck, frames for 44 dryers. Will arrange terms to suit. Chesapeake Paper Board Co., Baltimore, Maryland. tf

FORECLOSURE SALE—Property Ulster Tissue Mills, Inc., Napanoch, Ulster Co., N. Y., July 22, 1922, at 2 P. M.—About 8 acres land, Paper Mill, Machine Shop, Power Plant, New Stone Office Building, Store Houses. Two 72-inch single cylinder tissue machines, with complete accessory equipment, jordans, beaters, chests, and all finishing machinery. Adequate water power, two dams, total head about 90 feet, with steam and electric auxiliary; complete electric auxiliary, with transmission line new; all in good running order. For particulars, inquire H. Westlake Coons, Esq., Ellenville, N. Y. J-20

Property For Sale

Consists of small farm and outbuildings, fine residence, small paper mill, steam and water power, running good sizes and weights. We are offered twice the tonnage mill is making. Plot of land on railroad siding. Freehold, water rights and clear titles. Price reasonable. Owner retiring. Opportunity for papermaker with grown up family. Address, Box 5241, care Paper Trade Journal. J-20

FOR SALE

2—Chilled Calender Rolls 12" diameter, 88" face.
1—3-drum Downingtown Reel.
2—Wilbraham-Green Vacuum Pumps.
1—36" Diameter, 92" Face Cylinder Mold.
1—Claflin Engine, with new filling.
1—200 H.P. General Electric Motor. (Used two months.)
1—14x36 Cooper-Corlies Engine.
1—15¼x27 Buckeye Engine.

In order to move, will quote very attractive price. Address, Box 177, Coshocton, Ohio J-27

MISCELLANEOUS

SWIFT, GEORGE W., JR., Designer and Manufacturer of Special Machinery for Manufacturing and Printing Paper Goods. Bordentown, N. J. 8-24-22

PROPOSALS FOR FURNISHING

PAPER FOR THE PUBLIC PRINTING AND BINDING.

Sealed proposals will be received until 10 o'clock a. m., July 31, 1922, in the room of the Joint Committee on Printing, in the Capitol, Washington, D. C., for furnishing the paper for the public printing and binding for the term of six months beginning the 1st day of September, 1922. The proposals will be opened before and the awards of contracts made by the Joint Committee on Printing to the lowest and best bidder for the interest of the Government whose bids are in conformity with the requirements of the proposals. The Committee reserves the right to reject any or all bids, or to accept any bid or any part and reject the other part, if, in its opinion, such action would be in the interest of the Government.

Blank proposals containing the instructions, schedule, and specifications, accompanied by standard samples, may be obtained by addressing George H. Carter, Public Printer, Washington, D. C.

Contracts will be entered into for supplying the quantities required, whether more or less than the estimates.

The approximate estimated quantities set forth in detail in the Schedule comprise:

1,040,000 pounds newsprint paper; 4,848,000 pounds machine-finish printing paper; 500,000 pounds plant-fiber machine-finish printing paper; 15,000 pounds antique printing paper; 15,000 pounds opaque printing paper, high machine finish; 450,000 pounds rag machine-finish printing paper; 1,105,000 pounds sized and supercalendered printing paper; 100,000 pounds halftone printing paper; 165,000 pounds coated book paper; 1,500 pounds U S M O, white and blue writing paper, machine-dried; 750 pounds white French folio paper; 1,065,000 pounds writing paper, high machine finish; 2,680,000 pounds writing paper, air or loft dried; 2,000 pounds fine white writing paper, loft-dried; 1,500 pounds safety writing paper; 250,000 pounds U S M O blue safety writing paper; 75,000 pounds map paper; 401,000 pounds bond paper; 550,000 pounds ledger paper; 1,750 pounds tissue paper; 137,000 pounds cover paper; 5,000 sheets cloth-lined cover paper; 635,000 pounds manila paper; 10,000 pounds manila tympan paper; 110,000 pounds manila board; 20,000 pounds cardboard; 475,000 pounds bristol board; 3,500,000 pounds U. S. Postal Card cream bristol board; 4,000 pounds index bristol board; 1,000 pounds white paraffin paper; 2,250 pounds noncurling gummed paper; 1,000 pounds blotting paper; 2,000 pounds stereotype molding paper; 6,000 pounds offset paper, for web presses; 1,000 pounds plate-wiping paper, for embossing presses; 2,300 pounds lining and stripping paper; 1,000 pounds red pressboard; 500 pounds news board; 220,000 pounds chip board; 45,000 pounds strawboard; 40,000 pounds box board, lined; 380,000 pounds binder's board.

In cases where more than 1,000 reams are called for, proposals will be received for 1,000 reams or more.

By direction of the Joint Committee on Printing.

GEORGE H. CARTER,
Public Printer.

Washington, D. C., June 20, 1922.

J-13-20

MISCELLANEOUS

SHARTLE

can fill your requirements in used or new machinery.

THE SHARTLE BROTHERS MACHINE CO.

Middletown **Ohio**

TF.

OFF PEAK POWER

About 35,000,000 Kilowatt Hours per year available at Tonawanda, or North Tonawanda, New York.

Will make attractive rate to anyone who can utilize this power.

Location at the foot of navigation of the Great Lakes and the Western Terminus of the New York State Barge Canal.

Rail transportation facilities unsurpassed. Labor and Living Conditions Good.

Tonawanda Power Company
North Tonawanda, N. Y.

0-5

Rebuilt Paper Mill Machinery

IN STOCK AND GUARANTEED

Not Where Is and As Is

FOURDRINIER TISSUE MACHINE—One 96", one 68".
FOURDRINIER PARTS—Pusey & Jones 118", 100", Kutter Trowbridge 96".
PRESS PARTS FOR PAPER MACHINES—Pusey & Jones bell crank housings with rolls 18"x117", Black & Clawson swing arm housings with rolls.
DRYERS—Four 48"x111", thirteen 36"x95", four 48"x68", one 84"x67", eleven 42"x66".
CHILLED CALENDERS—One 72" five roll; one 66" five roll; one 54" five roll; two 58" six roll.
DILLON DOCTORS—For Machine Calenders 60" to 120" face.
SLITTERS AND WINDERS—One 120" Warren, one 108", 36" Kidders.
REELS—Pusey & Jones two drum upright 48" to 114".
BEATERS—Five 72"x42" Noble & Wood; one Dilts 62"x50" iron tub; one Jones 62"x52"; seven Horne 36"x36"; three Downingtown iron tub 54"x42"; one Dillon 60"x48" wood tub; one Dilts 50"x42" wood tub; one Emerson 53"x52", wood tub. Two No. 2 Claflins, two No. 1 Claflins. Two Emerson 54"x60" wood tub.
JORDANS—One Wagg Majestic, two No. 2 Dillon Improved, one Large Horne, three Monarch, one Jones Standard, two Pope Brushing Engines.
SCREENS—One 12 plate, six 10 plate open side Packer, two 6 plate, one Moore & White auxiliary.
STUFF PUMPS—Deane triplex 9"x8", Gould triplex 8"x10", Sandusky triplex 4"x6", 2—6" post.
REVOLVING SHEET CUTTERS—Five 61" Hamblet, four 61" Finlay, one 50" Hamblet diagonal, one 42" Finlay.
REAM CUTTER—One 48" Acme.
SUPER CALENDERS—One 45", one 42", one 36" Holyoke.
WET MACHINES—Four 72" Bagley & Sewall Hydraulic, 1—52".
ROTARY BOILERS—Two 8'x20'.
One Manistee Hog Chipper.
We have a large number of pumps and over five hundred calender, press and couch rolls in stock.

FRANK H. DAVIS COMPANY
175 Richdale Ave., Cambridge 40, Mass.

XUM

THE PAPER TRADE JOURNAL

Largest Circulation and Best Read of all mediums covering the Paper and Pulp Industry

EASTERN MANUFACTURING COMPANY

BLEACHED SULPHITE

Missisquoi Pulp and Paper Company

SHELDON SPRINGS VERMONT

White and Tinted Bristols—White Blanks—Index Bristol and Specialties in Card Boards.

The Pulp and Paper Trading Co.

21 East 40th Street New York City

DEALERS IN DOMESTIC CHEMICAL AND MECHANICAL PULPS AND PAPER

AGENTS FOR

J. & J. Rogers Company, Ausable Forks, N. Y.

Ware Coated Paper Company, Ware, Mass.

Procter & Gamble Distributing Co.

Mills at Augusta, Georgia, and Memphis, Tenn.

Canadian Kraft Limited, Three Rivers, Canada

Dealers in Wayagamack Kraft Pulp

EASTERN AGENTS of Sulphite Pulp. Made by Port Huron Sulphite & Paper Co., Port Huron, Mich.

The Shartle Bros. Machine Co. Middletown, Ohio

VELURE-SURFACE FELTS

This is the name we have adopted for our high finish FELTS to distinguish from similar felts not of our make.

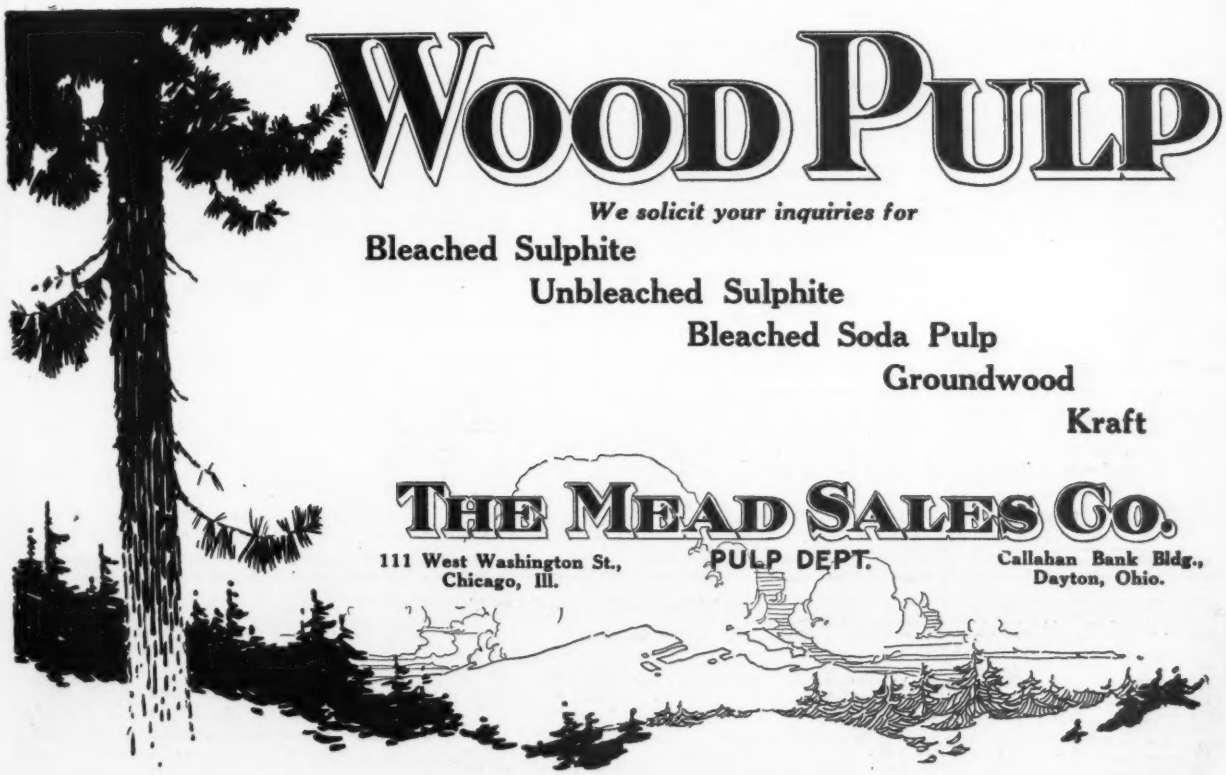
NOT a new FELT with us, simply a new name so the trade will know our SUPERIOR and DISTINCTIVE FELTS by a DISTINCTIVE name.

We recommend VELURE-SURFACE FELTS where high finish is required and YOUR conditions will warrant.

Write for our blanks so you can furnish us the information we need, and we will guide you right and save you MONEY.

YOURS FOR SERVICE.

LOCKPORT FELT COMPANY
NEWFANE, N. Y.



WOOD PULP

We solicit your inquiries for

Bleached Sulphite
Unbleached Sulphite
Bleached Soda Pulp
Groundwood
Kraft

THE MEAD SALES CO.

111 West Washington St., Chicago, Ill.
PULP DEPT.
Callahan Bank Bldg., Dayton, Ohio.

FREDERICK L. SMITH
21 EAST 40TH STREET, NEW YORK
PULP AND PAPER MILL ENGINEER

GEORGE F. DREW
MILL ARCHITECT AND ENGINEER
Consulting and Operating
BRUNSWICK, MAINE
SPECIALTY: Pulp, Paper and Saw Mills
Cotton, woolen, worsted, cordage, silk mills, and their equipment. Appraisals, adjustments.

E. BUTTERWORTH & CO., Inc.
CHARLES H. WOOD, Pres. *LEWIS JENNINGS, Treas.*
Boston Office, 136 Federal St. New York Office, 1123 Broadway
PAPER MAKERS' SUPPLIES
Agents for "S" Brand and Snow Brand Bleached Sulphite Pulp

THOMAS L. TOMLINES & SON
CONSULTING ENGINEERS
ASSOC. M. AM. SOC. C. E.; M. AM. SOC. M. E. Paper, Pulp and Fibre Mills, Hydraulic Developments, Hydro-Electric Plants
317-319 CITY BANK BLDG., SYRACUSE, N. Y. Steam Power Plants, Plans and Specifications, Efficiency Engineering
CONSULTATION AND REPORTS

HARDY S. FERGUSON CONSULTING ENGINEER
Member AM. SOC. C. E., Member AM. SOC. M. E., Member Eng. Inst. Can.
200 FIFTH AVENUE, NEW YORK CITY
Paper, Pulp and Fibre Mills, Including Building and Complete Mechanical Equipment, Water Power Development, Dams, Storage Reservoirs and Other Hydraulic Structures, Examinations, Reports, Estimates of Cost, Designs, Specifications, Valuations

WILLIAM T. FIELD
Consulting Engineer
296 Broadway, New York, N. Y. Flower Bldg., Watertown, N. Y.
DESIGNS ESTIMATES REPORTS

GEORGE F. HARDY
M. AM. SOC. C. E., M. AM. SOC. M. E., M. ENG. INST. CAN.
Mill Architect and Consulting Engineer
Langdon Building, 309 Broadway, New York
SPECIALTY: Paper, Pulp and Fibre Mills, Water Power Developments, Steam Power Plants, Plans and Specifications Evaluations, Reports, Consultation
Cable Address: "Hardistock," A B C 5th Edition, Bedford, McNeill. Western Union—Bentley's.

VITALE & ROTHERY
FOREST ENGINEERS
527 Fifth Avenue New York, N. Y.

J.H. WALLACE & COMPANY. TEMPLE COURT BUILDING NEW YORK CITY, U.S.A. CABLES, TRIPLEX, N.Y.
PULP PAPER AND POWER PLANTS
ENGINEERS & CHEMISTS INDUSTRIAL DESIGN PLANT IMPROVEMENT LABORATORY TESTS

J. O. Ross Engineering Corp.
30 E. 42nd St.
CHICAGO NEW YORK CITY BOSTON
VAPOR ABSORPTION SYSTEMS

ATLANTA BALTIMORE BOSTON CHICAGO CHARLOTTE, N. C. CLEVELAND DETROIT
SAN FRANCISCO PHILADELPHIA

MORSE CHAIN DRIVES
A POWER SAVER FOR POWER USERS
Morse Chain Co. Ithaca, N. Y.
HIGH SPEED SILENT RUNNING FLEXIBLE GEARING FOR POWER TRANSMISSION.
Address Nearest Office
KANSAS CITY MINNEAPOLIS MONTREAL NEW YORK ST. LOUIS PITTSBURGH

SAFE, RELIABLE
TIMBER ESTIMATES
at a few cents an acre
JAMES W. SEWALL
Old Town, Maine *Forest Engineer* Davidson Bldg., Washington, D. C.
Largest Cruising House in America

THE BRADLEY SALES AGENCY
Is open to listings of Eastern Canadian Timberlands. Hardwood and Freehold Pulpwood Lands are in active demand at present.
205 St. James St., Montreal, P. Q.
512 Bank of Montreal Bldg.

SLITTERS and SPECIAL MACHINES
for use in paper industry
C. BENNINGHOFEN & SONS
Hamilton, Ohio
Send us your requirements regardless of what they may be

"A type to meet every stoker need"
SANFORD RILEY STOKER CO.
WORCESTER, MASS.
Makers of
RILEY UNDERFEED STOKERS
BOSTON NEW YORK CINCINNATI PHILADELPHIA CHICAGO PITTSBURGH ST. PAUL
MURPHY IRON WORKS
DETROIT, MICH.
Makers of
MURPHY AUTOMATIC FURNACES
BUFFALO CLEVELAND DENVER

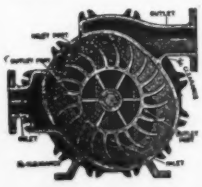
THE
MANAGEMENT ENGINEERING AND DEVELOPMENT CO.
7TH FLOOR CITY NATIONAL BANK BLDG.,
DAYTON, OHIO.

DESIGN, CONSTRUCTION AND OPERATION
OF
PULP, PAPER AND FIBRE MILLS
WATERPOWER DEVELOPMENT
STEAM POWER PLANTS

PLANS AND SPECIFICATIONS
EVALUATIONS AND REPORTS
CONSULTATIONS

Stebbins Engineering & Manufacturing Co.
Watertown, N. Y.
Designers, Equippers and Operators
Sulphite, Soda and Sulphate Pulp Mills
Digester and All Acid Proof Linings

Your Card in This Space
Will Bring Results
Rates on application



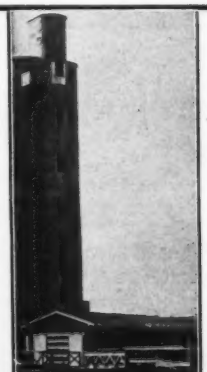
EFFICIENT SUCTION ROLL OPERATION demands the NASH HYTOR
THE NASH ENGINEERING CO.
SOUTH NORWALK, CONN.

CRANE PIPE BENDS

UNITED STATES TESTING COMPANY, Inc.
316 Hudson Street **CHEMISTS** New York City

Microscopical Examination, Physical Tests and Chemical Analysis of Paper. Official Chemists to the American Paper and Pulp Association, Association of American Woodpulp Importers, etc.
We analyze Fuels, Chemicals, Dyestuffs, Intermediates, Gasoline, Oils, Paints, Soaps, Greases, Waxes, Water for Drinking or Boiler Purposes, Woodpulp, etc.

SHERMAN PAPER COMPANY
Manufacturers of Roll Newsprint
ENTIRE PRODUCT FOR 1922 CONTRACTED
Mills at
Felts Mills, Great Bend and Lefebvre, N. Y.
Main Office
Trust Co. Building, Watertown, N. Y.



"Ask Your Neighbor What He Thinks of Them."

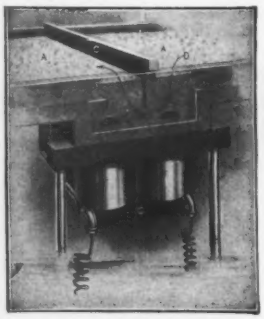
67 JENSSEN
Two-Tower Acid Systems now in operation or building.
Normal Prices Today Govern Our Installations
Every second Sulphite Mill on this continent is using our Towers and Making Money by Making Better Acid.
G. D. Jenssen Company
200 5th Ave. New York, N. Y.

Charles W. Bell
Consulting Specialist
In the Manufacture of PAPER BOX BOARD, TEST BOARD, FIBRE BOARD AND STRAWBOARD
And their fabrication into SHIPPING CONTAINERS, (Corrugated and Solid Fibre) FOLDING BOXES, etc.
Forty years' practical experience in all departments—Equipment, processes, formulae, trade customs, management, order and planning system. Markets, sales, estimating, prices, contracts, materials, supplies, collections, arbitrations, receivership and valuations.
"Let Me Help Solve Your Problems"
Consultation Strictly Confidential. Correspondence Solicited
Address—1047 Grand Avenue, Dayton, Ohio

STRATFORD PAPER CO. 160 Cornelison Ave. Jersey City, N. J.
High Grade Fourdrinier Tissues in Stock for Immediate Delivery

Paper Stock
NOW IS THE TIME TO BUY OUR RAW MATERIALS
Out of our forty different grades of paper stock you are assured a steady, reliable source for procuring raw materials in practically every branch of paper making.
Having specialized for 35 years in this one field you can depend upon a clean, well-packed, uniform product throughout; fulfillment of delivery promises; and because of our output of 300 tons daily, big tonnage at all times. Write us your wants.
Mendelson Bros. Paper Stock Co., General Offices: 910 So. Michigan Ave., Chicago, Ill. Long Distance Phones, Harrison 2340 and 5557

XUM



TYPE "B"
IRON EXTRACTOR
for PAPER MAKING

It consists of special magnetic surfaces of great power over which the paper stuff is made to pass. As a result, all the iron and many other foreign substances are completely extracted. Hundreds of these devices are in use daily and no one of them has failed to give complete satisfaction. Write us for Bulletins and full details.

THE ROLAND T. OAKES CO., Holyoke, Mass.

3

WANTED
SIDE OR ODD LOT ROLLS

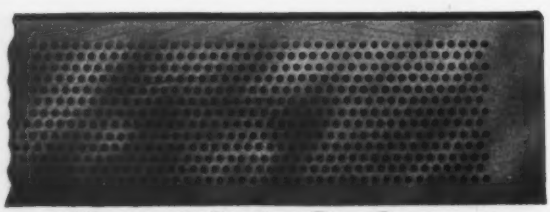
Any color, grade, width, diameter or basis. Must test at least 50% of weight on Mullen.
The larger the quantities the better we like it.
No items of less than a ton considered.
Send samples, specifications and price.
Address, Box 5209, care Paper Trade Journal.

BLUE RIDGE FIBRE
Bleached Soda Pulp

Manufactured and sold by

COLUMBIAN PAPER COMPANY
BUENA VISTA, VIRGINIA

Samples and prices upon application



"Lawson" Suction Box Covers

Made of Toughest Close-grained Rock Maple. Special drilling insures maximum suction, prevents all fins.

Paper Roll Plugs, Beater Paddles, Drainer Bottoms, Cogs, Mill Spools and Drums, Trucks, Dollys, Broke and Stock Cars.

MENASHA WOOD SPLIT PULLEY CO. Menasha, Wis.
PAPER MILL SUPPLIES FOR 36 YEARS

The Ashcroft Paper Tester
The Ashcroft Thickness Gauge

Actual necessities for all those who make, sell or purchase paper in any form. The thousands in daily use testify to their efficiency.

THE ASHCROFT MFG. CO.
119 West 40th Street, New York — 29 North Jefferson Street, Chicago, Ill. — 10 High Street, Boston, Mass.
Canadian Sales Agents: The Canadian Fairbanks Morse Co., Montreal and Toronto.

WOOD FLOUR

Various degrees of fineness and either fibrous or granular. Made from first growth Spruce and Pine, by approved processes.

UNION WOOD FLOUR CO., INC.
Hudson Falls, N. Y.

FRANKLIN PAPER CO. HOLYOKE, MASS.

MANUFACTURERS OF
Index Bristols, White Bristol Blanks, Etc.

BELLE ALKALI COMPANY, Belle, W. Va.

PURE CHLORINE — In cylinders and tanks
BLEACH — BELLE BRAND
CAUSTIC SODA — 76%—Solid and Flake

Arnold Hoffman & Co. Inc., Sole Agents, PROVIDENCE PHILADELPHIA BOSTON NEW YORK CHARLOTTE

Bagless Manufacturing Corporation

Mills:
Austin, Pa.

Sales Office:
527 Fifth Ave., New York

RED CAP FIBRE

AND OTHER

HIGH GRADE SULPHITE WRAPPING PAPERS

PAPER MAKERS CHEMICAL CO.
WESTERN PAPER MAKERS CHEMICAL CO.

EASTON HOLYOKE KALAMAZOO
JACKSONVILLE PENSACOLA ST. AUSTELL

CLAYS ROSIN SIZE
SATIN WHITE FOAM KILLER

FELT SOAP and OTHER SPECIALTIES

JAMES ROSENBERG, PRES. L. W. BOWMALL, Vice Pres.
AMERICAN WOODPULP CORPORATION
FOREIGN AND DOMESTIC
CHEMICAL and MECHANICAL WOODPULPS

Rags, New Cuttings, Bagging, Etc.

New York—347 Madison Ave.

BRANCHES:
Stockholm—Sweden
Helsingfors—Finland
Holyoke—J. B. Woodruff, Inc.
Kalamazoo—F. D. Haskell
Dayton—R. R. Reed

THE WATERBURY FELT CO.

FELTS and JACKETS

For Every Grade of Paper and Pulp

Correspondence and Orders Solicited

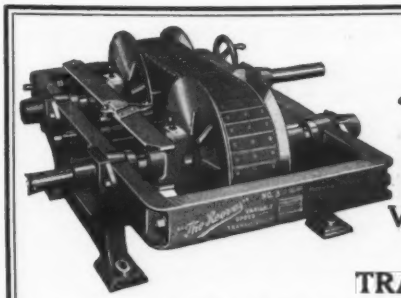
Manufactured at
SKANEATELES FALLS
New York

EVERYTHING IN

PULP & PAPER

J. F. PATTON CO., INC.
342 Madison Ave.
New York City

(Cable address - Pulp, N.Y.)



The Reeves

VARIABLE SPEED TRANSMISSION

It doesn't matter how fine a variation of speed you want or what kind of paper machine you wish to regulate, "THE REEVES" Variable Speed Transmission will do it. It will give the exact speed wanted to suit the condition and requirements of the paper being manufactured.

Valuable and interesting improvements have been made in the construction of "THE REEVES" Transmission, such as

TWO KEYS, FULL LENGTH OF SHAFT between boxes, LARGER ROLLER THRUST BEARINGS, LARGER DISCS, PATENT EQUALIZING COLLARS

all of which tends to give larger wearing surface, greater carrying capacity and longer life. We are furnishing Special High Duty Ball Bearings for main boxes if desired. They can be applied to any REEVES Transmission now in use.

It is the only Variable Speed device with 25 years' service record.

REEVES PULLEY COMPANY
COLUMBUS, INDIANA 1

The Union Sulphur Company

Producers of the Highest Grade
Brimstone on the market . .

ABSOLUTELY FREE FROM ARSENIC OR SELENIUM

The Largest Sulphur Mine in the World

CALCASIEU PARISH, LOUISIANA

Main Offices: Frasch Building, 33 Rector Street, New York

ALUM

FOR THE PAPER MAKER

Manufactured by

The Jarecki Chemical Co.

QUALITY SERVICE

Sole Selling Agents

ISAAC WINKLER & BRO.

CINCINNATI : : : : NEW YORK

"DRAPER" FELTS

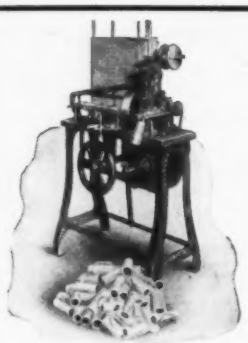
For Any Grade of Paper or Pulp

ARE GUARANTEED

To Give Entire Satisfaction

MANUFACTURED BY

DRAPER BROS. CO., CANTON, MASS.



Patented { June 24, 1913. August 10, 1915

GRISSINGER

Patented

AUTOMATIC TUBE MACHINE

Wire Stitched Tube

TOILET PAPER MACHINERY

GRISSINGER MACHINE WORKS

PHILADELPHIA, PA.

STORAGE TANKS

For Sulphite Mills

More than sixty years' experience enables us to meet your requirements on any tank problem. Our expert crews are at your service for any installation of our products.

Permit us to estimate on them.

G. WOOLFORD WOOD TANK MFG. CO.

LINCOLN BLDG. PHILADELPHIA, PENN.

When you think of Wood Tanks Think Woolford Tanks.

Claflin Continuous Beaters

Will take the pulp from the Digestors and deliver it to the Paper Machine without the use of tub-beaters or Jordan engines.

You can cut down expenses by writing

The Claflin Engineering Company

Lancaster, Ohio

6

WHEN IN NEED OF

Fly Bars and Bed Plates
Beater Valves and Hydrants
Beater Rolls or Repair Parts
Beating Engines

WRITE US

DAYTON BEATER AND HOIST CO.

DAYTON, OHIO

2

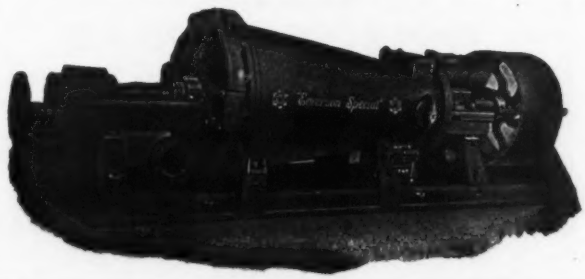
FOREIGN and DOMESTIC

CASTLE, GOTTHEIL & OVERTON

Paper Stock
New Cuttings and Rags
Jute Stock
Sizing, Sulphite and Soda Pulps

200 FIFTH AVE. NEW YORK

EMERSON MANUFACTURING CO. LAWRENCE MASS.



See the Second-Hand Machinery ads and note the ABSENCE of

EMERSON BEATING ENGINES

They seldom wear out and are never thrown out. PERFECT CIRCULATION. NO "PADDLING."

The "EMERSON" JORDAN

does its work with half the power required by others of no greater capacity.

WRITE FOR DETAILS

WE specialize in durable Fourdrinier Wires and Cylinder Wires in any metal desired up to and including 120 mesh in plain woven, double warp, triple chain, and twisted weaves.

Save two-thirds the cost and three-quarters of the expense of putting on brass and bronze wires by using our nickel alloy wires.

Joseph O'Neill Wire Works

Port Chester, N. Y.

Established 1906

F. L. Smithe Machine Co. Inc.

MANUFACTURERS OF

ENVELOPE MACHINERY

for making any style envelope, regular or special. Printed, stamp embossed and tissue lined envelopes.

Also die presses, tension machines, and metal clasp machines, and all other machinery used in manufacturing envelopes.

Designing, pattern making and machine work.

150 Eleventh Avenue, New York City, New York, U. S. A.

For reliable running and average long life

Lindsay Fourdrinier Wires

ARE UNSURPASSED

We make them for the largest and fastest machines.

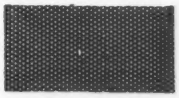
Cylinder Wires all sizes.

The Lindsay Wire Weaving Co.

COLLINWOOD STA. CLEVELAND, OHIO

Perforated Metal Screens

For Pulp and Paper Mills



.065 Inch Round

⅛ x ½ Inch Slots

STEEL, COPPER, BRASS, BRONZE and other Alloys

punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.

CHARLES MUNDT & SONS

53-65 FAIRMONT AVE. JERSEY CITY, N. J.

WILLIAM A. HARDY & SONS COMPANY, Fitchburg, Mass., U.S.A.

SLITTERS AND WINDERS
SAMUEL M. LANGSTON COMPANY
CAMDEN, N. J.

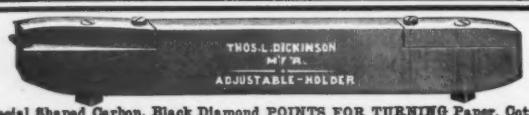
Established 1895
DANIEL M. HICKS
(INCORPORATED)
PAPER MILL SUPPLIES
200 Fifth Avenue New York City

AGALITE FILLER
UNITED STATES TALC CO.
GOUVERNEUR NEW YORK

Salomon Bros. & Co.
IMPORTERS OF
All Grades of Rag and Paper Stock
200 FIFTH AVENUE, NEW YORK
COTTON WASTE :: LINTERS :: RAMIE

WILLIAM B. DILLON
DILLON & BARNES
Paper Mill Products and Supplies
52 VANDERBILT AVENUE, NEW YORK
Telephone, 7353 Murray Hill

Penn Paper and Stock Company
PACKERS OF ALL GRADES OF
WASTE PAPER
240 N. FRONT STREET PHILADELPHIA



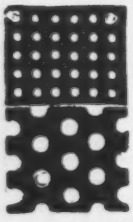
Special Shaped Carbon, Black Diamond POINTS FOR TURNING Paper, Cotton Chilled Iron and Hardened Steel Calender Rolls, Hard Rubber, Fibre, etc.
Successor to John Dickinson, Established 1796.
Agents for Great Britain, C. W. BURTON, GRIFFITHS & CO., Ludgate Square, London.
Manufactured by THOS. L. DICKINSON, 26 Gold St. NEW YORK

Manufacturers of All Special Small Roll Products

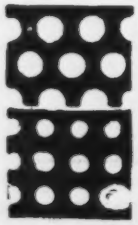
Adding Machine, Cash Register, Die Wiping, Hand Rolls, Etc., Etc.
PAPER MANUFACTURERS CO., Inc., Phila., Pa.

"WATERBURY"
W Felts-Jackets W
ORISKANY, N. Y.
OUR TIGHT FITTING, DIAMOND "W" JACKETS WILL NOT LICK UP AT ANY SPEED
1869 {MADE ONLY BY / GUARANTEED BY} 1921
H. WATERBURY AND SONS COMPANY, ORISKANY, N. Y.

UNION TALC COMPANY
Finest Grades of Agalite
132 Nassau Street New York



MANHATTAN
PERFORATED METAL CO.
Office and Works: 237-239 Centre St., New York
PERFORATORS
of COPPER, BRASS, ZINC, ALUMINUM, TIN, STEEL, IRON, Etc.
Write for Copper, Brass, Tin or Aluminum Catalog.
Brass and Copper Centrifugal and Juice Strainer Plates a Specialty



TRADE CAMACHINE MARK
SLITTERS AND WINDERS
CAMERON MACHINE CO. BROOKLYN, N.Y.

Papier-Zeitung
BERLIN SW 11 (GERMANY)
Founded by Carl Hofman, 1876
appears three times a week
Covers the whole paper trade (paper making, transforming, stationery). More than 12,500 bonafide subscribers all over the world.
Subscription: 4 Dollars

SUPERIOR CHEMICAL CO.
JOLIET, ILLINOIS
Manufacturers
PAPER MAKERS' and FILTER
ALUM

BAKER MANUFACTURING CORPORATION

Formerly

BAKER & SHEVLIN COMPANY

Sole Manufacturers of

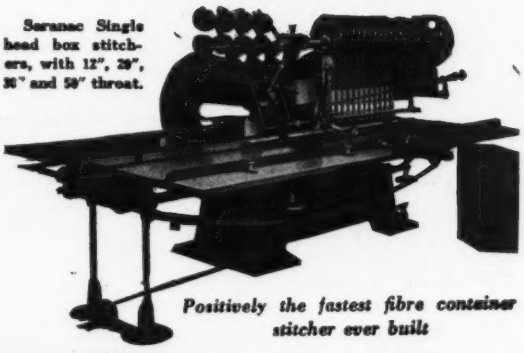
THE MAGAZINE GRINDER

Have you seen the article which was read before the Paper Makers' Convention on Relative Efficiency of the Automatic Magazine and Pocket Grinders? If not, and you are interested, kindly advise and we will send you a copy.

BAKER MANUFACTURING CORPORATION, Saratoga Springs, N.Y.

25 to 40 shipping containers per minute can be made on a

Saranac Automatic Multiple Head Stitcher



Saranac Single head box stitchers, with 12", 29", 36" and 50" throat.

Positively the fastest fibre container stitcher ever built

IT is equipped with twelve stitching heads, so that any number from 1 to 12 staples can be driven at one time. Either a single or double row of staples, or single row with the tie stitch, are automatically driven. It takes less than five minutes to change from the largest to smallest size containers.

Write for Full Particulars.

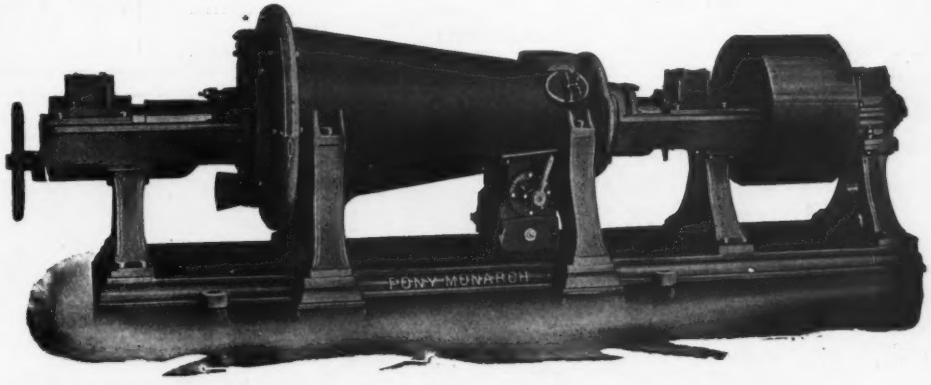
We also manufacture Bottom Sealing Machines.

Saranac Machine Company

Benton Harbor, Michigan

WE MAKE BEATERS AND JORDANS OF QUALITY

SIX SIZES OF JORDANS, BEATERS, FROM ¾ LBS. TO 3000 LBS.



The Noble & Wood Machine Co., Hoosick Falls, N.Y.

CLASSIFIED INDEX TO ADVERTISEMENTS

ACID SYSTEMS. Page
G. D. Jensen Co. 73

ADDING MACHINE ROLLS.
Paper Manufacturers Co. 78

AGALITE.
Union Talc Co. 78
U. S. Talc Co. 78

ALUM.
The Kalbfleisch Corp. —
Pennsylvania Salt Mfg. Co. 84
Superior Chemical Co. 78
Winkler Bros., Inc. 76

ARCHITECTS AND ENGINEERS.
George F. Drew 72
Hardy F. Ferguson 72
William T. Field 72
George F. Hardy 72
G. D. Jensen Company 73
Management Engineering and Development Co. 73
F. L. Smith 72
Stebbins Engineering Co. 73
Thomas L. Tomlines & Son 72
Vitale & Rothery 72
Joseph H. Wallace & Co. 72

ASBESTINE PULP.
International Pulp Co. Front Cover

ASH-HANDLING MACHINERY.
Jeffrey Mfg. Co. 8

BALL MILLS.
The Crossley Machine Co. —

BARKERS.
Valley Iron Works. 27

BEARINGS (Collar Oiling).
Hill Clutch Co. —

BEATER PADDLES.
Menasha Wood Split Pulley Co. 74

BEATING ENGINES.
Appleton Machine Co., The. 41
Beloit Iron Works. 23
Claflin Engineering Co. 76
Dayton Beater & Hoist Co. 76
Dillon Machine Company, Inc. 82
Dilts Machine Works, Inc. 12
Downingtown Mfg. Co. 82
Emerson Mfg. Co. 77
Noble & Wood Machine Co. 79
Valley Iron Works. 27

BELTING.
Goodyear Tire & Rubber Co. —
Republic Rubber Co. 57

BOILERS.
Heine Boiler Co. 31

BRONZE CASTINGS.
Hyde Windlass Co. —

BUCKETS (Elevator).
Hendrick Mfg. Co. 9

CALENDER ROLLS.
Appleton Machine Co., The. 41
Lobdell Car Wheel Co. 44
Norwood Engineering Co. 5
B. F. Perkins & Son, Inc. 11
Textile Finishing Machinery Co. 80

CARBON TOOLS.
Thomas L. Dickinson. 78

CASEIN.
Casein Mfg. Co. —

CENTRIFUGAL PUMPS.
Valley Iron Works. 27

CHAINS.
Jeffrey Mfg. Co. 8

CHEMICALS, COLORS, ETC.
Arnold Hoffman & Co., Inc. 74
Du Pont de Nemours Co. —
Heller & Merz Co. 13
Kuttroff, Pickhardt & Co. 83
White Tar Aniline Corporation, The. —
C. K. Williams & Co. 84

CHEMISTS. Page
United States Testing Co. 73

CLAY.
Atterbury Bros. Front Cover
John W. Higman Co. —
Miner Edgar Co., The. 9
Paper Makers' Chemical Co. 75
Star Clay Co. 84
Western Paper Makers' Chemical Co. 75

CLUTCHES (Friction, Etc.).
Hill Clutch Co. —

COGS.
N. P. Bowsher Co. 84
Menasha Wood Split Pulley Co. 74

COMPRESSORS (Air).
The Nash Engineering Co. 73

CONVEYORS (Pulpwood).
Jeffrey Mfg. Co. 8
Weller Mfg. Co. 10

CORDAGE.
Columbian Rope Co. —

CUTTERS.
Smith & Winchester Mfg. Co. 57

DIE CUTTERS.
Hoggson & Pettis Mfg. Co. —
Independent Die Co., Inc. 6

DIGESTERS.
American Welding Co. —
Biggs Boiler Works Co. —

DRINKING CUPS.
F. N. Burt Company, Ltd. 8
Vortex Mfg. Co. 35

DRIVES.
Westinghouse Electric & Mfg. Co. —

DRIVES (Silent Chain).
Morse Chain Co. 72

DYERS
Biggs Boiler Works Co. —

DRYER EXHAUSTS.
The Nash Engineering Co. 73

DRYING SYSTEMS.
Open Coil Heater & Purifier Co. 3
W. F. Pickles. 4
Ross Engineering Co., J. O. 72
B. F. Sturtevant Co. 39

DYES, ANILINE.
Calco Chemical Co. —
Heller & Merz. 13
National Aniline & Chemical Co. —
White Tar Aniline Corporation, The. —

DYE STUFFS.
Du Pont de Nemours & Co., E. I. —

ELECTRIC HOISTS.
Shepherd Electric Crane & Hoist Co. 59

ENVELOPE MACHINES.
Potdevin Machine Co. 6
F. L. Smithe Machine Co. 77

FAN AND BLOWING SYSTEMS.
B. F. Sturtevant Co. 39

FAN PUMPS.
Valley Iron Works. 27

FELTS AND JACKETS.
Albany Felt Co. —
Appleton Woolen Mills. 6
Bulkley, Dunton & Co. 65
Draper Bros. Co. 76
Fitchburg Duck Mills. 2
F. C. Huyck & Son. 13
Knox Woolen Company. 65
Lockport Felt Co. 71
Orr Felt & Blanket Co. 67
Shuler, Benninghofen Co. 84
Waterbury Felt Co. 75
Waterbury & Sons Co., H. 78

FELT ROLLS.
Rodney Hunt Machine Co. —

FILTERING SYSTEMS. Page
Norwood Engineering Co. 5

FLOOR COVERINGS.
L. Sonneborn & Sons. —

FLOOR HARDENER (Concrete).
L. Sonneborn & Sons. —

FOURDRINIER WIRES.
Appleton Wire Works. 84
Buchanan & Bolt Wire Co. 67
Cabble Excelsior Wire Mfg. Co. 84
Cheney, Bigelow Wire Works. 82
Eastwood Wire Mfg. Co. 84
Green Bay Wire Works. —
Lindsay Wire Weaving Co. 77
Joseph O'Neill Wire Works. 77
The W. S. Tyler Company. 83

FURNACE (Automatic).
Murphy Iron Works. 72

GAUGES (Pressure, Indicating and Recording).
Bristol Co., The. 7

GUMMING AND GLUING MACHINERY.
Potdevin Machine Co. 6

INVESTMENTS.
Taylor, Bates & Co. 65

IRON EXTRACTORS.
Oakes Co., Roland T. 74

KNIVES, ETC.
Bolton & Son, J. W. 9
Machinery Co. of America. —

LUBRICANTS.
Vacuum Oil Co. —

MICROMETERS.
Ashcroft Mfg. Co. 74
E. J. Cady Co. —
Foreign Paper Mills, Inc. 3

MICROMETER CALIPERS.
Lobdell Car Wheel Co. 44

MILL COGS.
N. P. Bowsher & Co. 84

MILL INSTALLATIONS.
The Layne Ohio Co. —

MOTORS.
B. F. Perkins & Sons, Inc. 11

MOTOR TRUCKS.
Packard Motor Car Co. —

OILS AND GREASE.
Vacuum Oil Co. —

PACKING.
Jenkins Bros. 4

PAPER BAG MACHINERY.
Potdevin Machine Co. 6
Smith & Winchester Mfg. Co. 8

PAPER BAG MANUFACTURERS.
Lawrence Bag Co. 59
Schorsch & Co. 67

PAPER BOX BOARDS.
C. L. La Boiteaux Co. 5

PAPER CUTTERS.
Hambet Machine Co. 4

PAPER DEALERS.
Fernstrom Paper Co. 65
R. F. Hammond. Front Cover

PAPER EXPORTERS.
Hudson Trading Co. 2
Katzenstein & Keene, Inc. 4
Parsons Trading Co. Front Cover

Super Calenders
Breaker Calenders
Friction Calenders
Embossing Calenders
Hydraulic Presses and Pumps

Successors to the Granger Foundry & Machine Co.

The Textile-Finishing Machinery Company
PROVIDENCE, R. I.

CLASSIFIED INDEX TO ADVERTISEMENTS

PAPER MANUFACTURERS. Page
Bayless Mfg. Co. 75
Becker Paper Corporation 35
Brown Company 5
Collins Mfg. Co. 7
Diamond State Fiber Co. Front Cover
Eastern Mfg. Co. 70
Eaton Dikeman Co. —
Fort Howard Paper Co. 11
Franklin Paper Co. 74
Hammermill Paper Co. 29
Hanna Paper Corporation 5
Howard Paper Co. 61
Mississquoi Pulp & Paper Co. 70
Mountain Hill Paper Co. 61
St. Regis Paper Co. 5
Sherman Paper Co. 73
Stratford Paper Co. 73
Wausau Sulphate Fibre Co. 9
West Virginia Pulp & Paper Co. 61

PAPER AND PULP MACHINERY.
Appleton Machine Co. 41
Bagley & Sewell Co. —
Baker Mfg. Co. 79
Beloit Iron Works 23
Bird Machine Co. 21
Black-Clawson Co. 11
Clark-Aiken Co. 11
Frank H. Davis 69
Downingtown Mfg. Co. 82
Glens Falls Machine Works 10
Improved Paper Machinery 37
Sandy Hill Iron & Brass Co. 10
Shartle Bros. Machine Co. 69 and 70
Smith & Winchester Mfg. Co. 37
Trimbey Machine Works 44
Valley Iron Works 27
Waterville Iron Works 2

PAPER MILL AGENTS.
Dillon & Barnes 78
McIver, Dana T. 2

PAPER AND PULP MILL BROKERS.
Gibbs-Brower Co. —

PAPER SPECIALIST.
Charles W. Bell 73

PAPER STOCK.
Atterbury Bros. Front Cover
Butterworth & Co., Inc., E. 72
Castle, Gottheil & Overton 76
Gumbinsky Bros. 84
Hicks, Daniel M. 78
Mendelson Bros. Paper Stock Co. 73
Penn Paper & Stock Co. 78
Salomon Bros. & Co. 78
Train-Smith Co. Front Cover

PAPER TESTERS.
Ashcroft Mfg. Co. 74
E. J. Cady Co. —
Foreign Paper Mills, Inc. 3
B. F. Perkins & Sons, Inc. 11
Thwing Instrument Co. —
Valley Iron Works 27

PAPER TUBE MACHINERY.
Dietz Machine Works 9
Grissinger Machine Works 76

PAPER WAXING MACHINERY.
Potdevin Machine Co. 7

PERFORATING MACHINES.
Dietz Machine Works 9

PERFORATED METAL.
Harrington & King Perforating Co. 67
Hendrick Mfg. Co. 9
Charles Mundt & Sons 77
Manhattan Perforated Metal Co. 78

PIPE (Genuine Wrought Iron).
Reading Iron Co. —

PRESS ROLLS. Page
Rodney Hunt Machine Co. —

PLUGS.
Menasha Wood Split Pulley Co. 74

PLUGS (Wood).
O. L. Bartlett 11

PULP STONES.
International Pulp Stone Co. 11
Lombard & Co. 83

PUMPS.
Frederick Iron & Steel Co. —
Hayton Pump & Blower Co. —
The Layne-Ohio Company —

PUMPS (Vacuum).
The Nash Engineering Co. 73

PRESSURE BULKERS.
B. F. Perkins & Sons, Inc. 11

RAG CUTTERS.
B. F. Perkins & Sons, Inc. 11
Taylor, Stiles & Co. —

RECORDING INSTRUMENTS.
Bristol Co. 7

REGISTERS.
Standard Register Co. —

ROLL GRINDERS.
Lobdell Car Wheel Co. 44

ROSIN.
Hercules Powder Co. —

ROSIN SIZE.
Arabol Mfg. Co. 83
Paper Makers Chemical Co. 75
Western Paper Makers Chemical Co. 75

ROTARY BLEACHING BOILERS.
Biggs Boiler Works Co. —

SAVEALLS.
Bird Machine Co. 21

SATIN WHITE.
The Kalbfleisch Corp. —
Paper Makers Chemical Co. 75
Western Paper Makers Chemical Co. 75

SCALES (Paper).
Fred Baker —
E. J. Cady & Co. —
Foreign Paper Mills, Inc. 3

SCREENS.
Beloit Iron Works 23
Bird Machine Co. 21
Central Mfg. Co. —
Wm. A. Hardy & Sons Co. 77
Union Screen Plate Co. 80

SHREDDERS (Pulp and Paper).
Valley Iron Works 27

SKYLIGHTS.
E. Van Noorden & Co. 83

SLASHERS.
Ryther & Pringle Co. —

SLITTERS AND REWINDERS.
Beloit Iron Works 23
C. Benninghofen & Son 72
Cameron Machine Works 78
Dietz Machine Works 9
Gressinger Machine Works 76
Samuel M. Langston Co. 78

SPLICING TISSUES.
E. M. Sergeant Co. —

STARCH.
Corn Products Refining Co. 12

STEAM SPECIALTIES.
Crane Co. 73
Open Coil Heater & Purifier Co. 3

STITCHING MACHINERY.
Saranac Machine Co. 79

STOCK REGULATORS. Page
Trimbey Machine Works —

STRAW MAKING.
Samuel M. Langston Co. 78

SUCTION BOX COVERS.
Menasha Wood Split Pulley Co. 74

SULPHITE, BLEACHED AND UNBLEACHED.
J. Andersen & Co. 4 and 25
The Borregaard Co., Inc. 65
Brown Co. 5
Bulkley, Dunton & Co. 14
Butterworth & Co., Inc., E. 72
Canadian Robert Dollar Co. 37
Columbian Paper Co., Inc. 74
Craig-Becker Co., Inc. 3
Eastern Manufacturing Co. 70
Mead Sales Co., The 71
Price & Pierce, Ltd. Front Cover
Pulp & Paper Trading Co. 70

SULPHUR.
Texas Gulf Sulphur Co. 7
Union Sulphur Co. 76

TANKS (Water, Oil, etc.).
Biggs Boiler Works Co. —
W. E. Caldwell Co. —
New England Tank & Tower Co. 83
Stearns Lumber Co., A. T. —
Tokheim Oil Tank & Pump Co. —
Woolford Wood Tank Co. 76

TIMBER ESTIMATES.
The Bradley Sales Agency 72
James W. Sewall 72

TRANSMISSION MACHINERY.
H. W. Caldwell Co. 3
Hill Clutch Co. —
Reeves Pulley Co. 75
Weller Mfg. Co. 10

TURPENTINE.
Hercules Powder Co. —

TWINES.
American Manufacturing Co. 41
National Patent Reed Sales Co. —

VALVES.
Crane Co. 73
Jenkins Bros. 4

VAPOR ABSORPTION SYSTEMS.
Ross Engineering Co., J. 72

VENTILATING FANS.
B. F. Perkins & Sons, Inc. 11
Ross Engineering Co., J. 72

VEGETABLE PARCHMENT PAPERS.
Kalamazoo Vegetable Parchment Co. 61

WATER SUPPLIES.
The Layne-Ohio Company —

WOOD FLOUR.
Union Wood Flour Co. 74

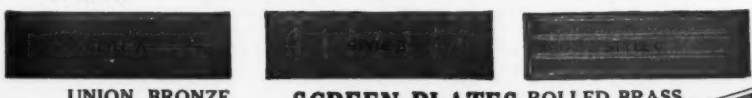
WOOD PULP IMPORTERS.
American Wood Pulp Corp. 75
J. Andersen & Co. 4 and 25
Ira Beebe & Co. 83
The Borregaard Co., Inc. 65
Bulkley-Dunton & Co. 14
M. Gottesman & Co. —
Hammond, R. F. Front Cover
E. J. Keller Company —
Lagerloef Trading Co. 12
Mead Sales Co., The 71
Nilsen, Lyen & Co., Inc. —
A. J. Pagel & Co., Inc. 19
J. F. Patton & Co., Inc. 75
Perkins-Goodwin Co. 35
Scandinavian-American Trading Company, Front Cover

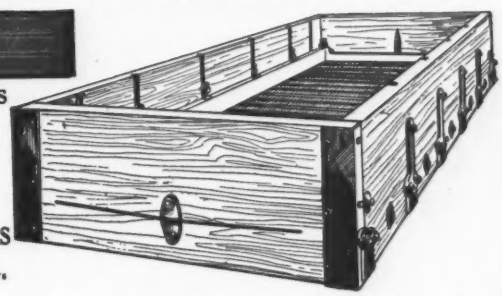
WOOD ROLLS.
Rodney Hunt Machine Co. —

Fitchburg, Mass., U. S. A.

UNION SCREEN PLATE COMPANY

Lennoxville, P. Q. Canada





UNION BRONZE (Best phosphorized Cast Metal) **SCREEN PLATES** ROLLED BRASS (Union Quality)

Old Plates RECLOSED and RECUT to accurate gauge.

UNION BRONZE SCREWS for Screen Plates

UNION BRONZE SUCTION BOX PLATES

Immediate Delivery of the Largest Orders. Satisfaction Guaranteed.

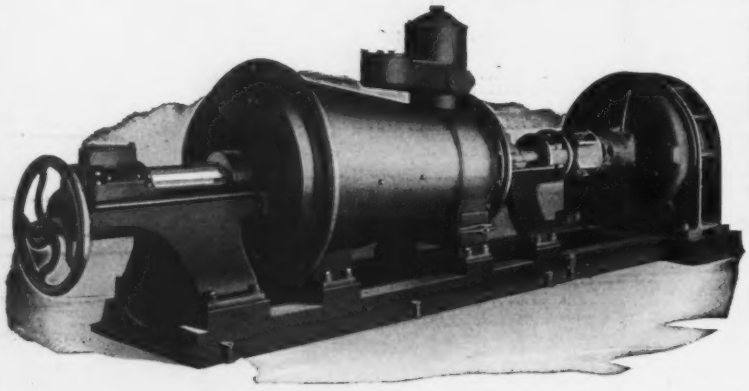
THE UNION WITHAM SCREEN PLATE VAT AND FASTENERS

THE ORIGINAL — Over One Thousand in Successful Operation

THE BEST — Recommended by Screen Makers

XUM

THE DILLON JORDAN



Our latest Improved Machine, three sizes; belt or direct connected motor driven. All Bearings self-oiling, adjustable and water-cooled. Fitted with Standard Steel Knives, Special Heat Treated Steel, Bronze, or Manganese Steel Plug and Shell Lining.

For full particulars apply to

DILLON MACHINE CO., Inc.
Builders of Paper Mill Machinery
Lawrence, Mass.

Paper Making Machines

Cylinder and Fourdrinier

Downingtown Manufacturing Co.

East Downingtown, Pa., U. S. A.

ESTABLISHED 1842

FOURDRINIER WIRES

DANDY ROLLS
CYLINDER
MOLDS

CHENEY BIGELOW WIRE WORKS

SPRINGFIELD, MASS.

MANUFACTURERS

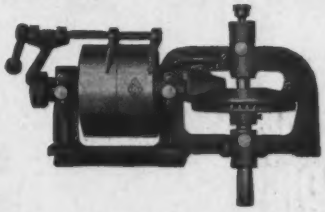
Paper Mill Wire Cloth, Bank and Office Railings and Grill Work

Dry Rosin Size

Brittle and easily soluble. Cheapest size out. Cheaper than mill made size. Also our hot and cold water sizes; standard quality. Cleaner, more uniform and economical than either mill made sizes or those offered by our competitors. Also Arabol Paper Size, Splicing Gums, Condensed Paste Powder, Paper Makers' Starches.

Arabol Manufacturing Co.
100 William Street NEW YORK

AGITATOR DRIVES



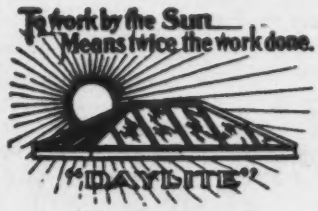
Six Stock Sizes
Special Designs
"NETT-CO" line
is complete from
smallest to largest.

NEW ENGLAND TANK & TOWER CO.
30 CHURCH ST., N. Y. EVERETT, MASS.

E. J. KELLER COMPANY
INCORPORATED
200 FIFTH AVENUE
NEW YORK

FOREIGN AND DOMESTIC
PAPER MAKERS' SUPPLIES
CHEMICAL AND MECHANICAL PULPS
COTTON, JUTE AND FLAX WASTES
EAST INDIA MERCHANDISE

Van Noorden Skylights



are as
Indispensable

To a modern Paper Mill as its important inner equipment. "DAYLITE" means Nature's light without weather or condensation drip.

E. VAN NOORDEN & CO. 103 Magazine St. Boston, Mass.

PULP STONES

of absolutely the finest quality

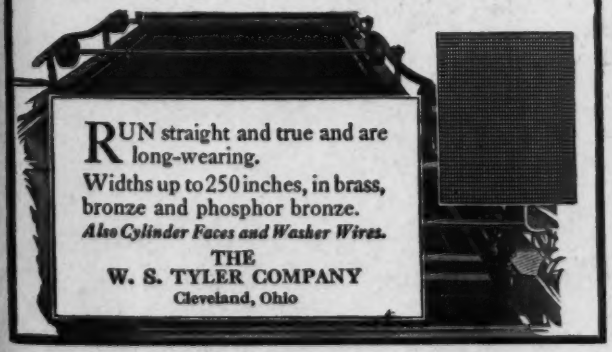
Lombard & Co., Incorporated
Importers and Dealers
236-238 A Street : BOSTON, MASS.
Branch at Montreal, Cana

ESTABLISHED 1851
IRA L. BEEBE CYRUS E. JONES

IRA L. BEEBE & CO.
132 Nassau St., New York

IMPORTERS AND DEALERS IN
WOOD PULP

"TYLER" FOURDRINIER WIRES



RUN straight and true and are long-wearing.
Widths up to 250 inches, in brass, bronze and phosphor bronze.
Also Cylinder Faces and Washer Wires.
THE
W. S. TYLER COMPANY
Cleveland, Ohio

COLORS FOR PAPERMAKERS

KUTTROFF, PICKHARDT & CO.
INCORPORATED
128 Duane Street - - New York
BOSTON - 157 Federal St. PHILA. - 111 Arch St.
PROV. - 52 Exchange Pl. CHI. - 305 W. Randolph St.

XUM

EASTWOOD
WIRE MFG. CO.
FOURDRINIER WIRES
BELLEVILLE, NEW JERSEY, U.S.A.
1

C. K. WILLIAMS & CO., EASTON PA.

Proprietors of the Penna. Dry Paint and Color Works and the Helios Dry Color, Chemical and Copperas Works of Allentown, Pa.

Manufacturers, Miners and Importers of Coloring Materials, such as Venetian Reds, Red, Brown, Black, Yellow, Oxides, Chrome and other Ochres, also Paper Fillers—as Agalites, Mineral Pulp, Talc, China and other Clays.

COLORS FOR PAPER MANUFACTURERS' USE

THE WM. CABBLE
EXCELSIOR WIRE MFG. CO.

Established 1848
Incorporated 1870-1896

Manufacturers of Superior Fourdrinier Wires
Brass, Copper and Iron Wire Cloth of Every Description.
Best Quality of Wire Rope.

Write for Price List

74-90 Ainslie St. BROOKLYN, N. Y.

Economy means buying the most in net results for the same money.

"G.B." 3RDS & BLUES

Warranted to EXCEL in Color, Strength and Net Rag Contents.

Inquiries solicited

GUMBINSKY BROS. CO.

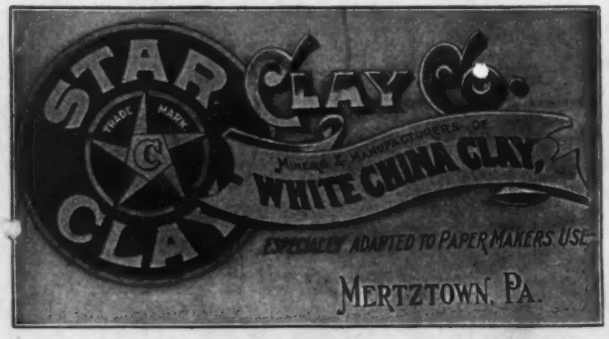
America's Largest Packers of Rags and Waste Paper
2261 South Union Ave., Chicago, Illinois 5

Don't Guess at Important Matters

BOWSHER'S SPEED or MOTION INDICATOR is indispensable

in obtaining a UNIFORM speed of machinery, and is one of the most PROFITABLE little devices ever put in a mill. Will pay for itself in 30 days. Dial 12 in. in diam. Weight, 10 lbs.

The N. P. Bowsher Co., South Bend, Ind.



NATRONA
Porous Alum
MANUFACTURED BY
PENNSYLVANIA SALT MFG. COMPANY
PHILADELPHIA

Hamilton Top Felts

run until worn out, with less trouble of "picking" on machine than any other make of top felts can show. A trial is invited.

SHULER & BENNINGHOFEN
HAMILTON, OHIO
1

FOURDRINIER
CYLINDER
WASHER
WIRES

50 years' experience as wire makers insures highest quality of product

"Appleton Wires Are Good Wires"

Appleton Wire Works Appleton, Wis.